319-CD-005-002

EOSDIS Core System Project

Science Data Processing Segment (SDPS) Integration and Test Plan for the ECS Project Volume 2: Release A

Final

March 1995

Hughes Applied Information Systems
Landover, Maryland

SDPS Integration and Test Plan for the ECS Project Volume 2: Release A

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SUBMITTED BY

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Preface

This document is a formal contract deliverable with an approval code 1. It requires Government review and approval prior to acceptance and use. Changes to this document also require Government approval prior to acceptance and use. Changes to this document shall be made by document change notice (DCN) or by complete revision.

This document is under ECS Project Configuration Control. Any questions or proposed changes should be addressed to:

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Abstract

This document specifies the Test Plan (Release A) for the Science Data Processing Segment (SDPS) of the ECS Project.

Keywords: Integration, Test, I&T, Build, Thread, Release A, SDPS, ECS

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1. Introduction

1.1 Identification

This document is submitted as required by CDRL item 054, DID 319/DV1 whose requirements are specified as a required deliverable under the Earth Observing System (EOS) Data and Information System (EOSDIS) Core System (ECS), Contract (NAS5-60000).

1.2 Scope

This document defines the plan for integration, test, and verification of the Science and Data Processing Segment, referred to as SDPS, for Release A. It is one of three segment test plans required to test ECS at the segment level. There is a separate test plan for the Flight Operations Segment (FOS) and the Communications and Systems Management Segment (CSMS). The SDPS Integration and Test Plan applies only to segment level verification activities. This plan includes verifying that the ECS complies with the SDPS Level 4 functional requirements, and the ECS design specifications. The roles and activities of the Science Data Processing Segment Integration and Test (SDPS I&T) Organization are described and schedules for performing SDPS I&T activities are included.

1.3 Purpose and Objectives

This Segment Integration and Test Plan describes the test, review, and analysis effort to be conducted by the SDPS I&T organization for the SDPS Segment for Release A. This document presents the overall processes and activities associated with verifying the SDP Segment during the segment integration and test phase of the SDPS development. This test plan provides an outline of the activities to be performed for SDPS I&T, and is later used to prepare test procedures which provide more detailed instructions for verification of the SDPS. It delineates the roles and responsibilities of each organization associated with the segment integration and test activities.

1.4 Status and Schedule

Volume 2 of the Segment Integration and Test Plan (DID # 319/DV1) is delivered at Release A PDR. Volume 2 defines the process for integration and test of SDPS software components and subsystems for Release A. Also at PDR, Volume 1 of the Segment Integration and Test Plan (DID # 319/DV1) defines the process for SDPS I&T of software components and subsystems for IR1. For both IR1 and Release A documents, test cases are described at a summary level identifying test objectives, inputs, outputs, and success criteria. Test databases and test tools needed for each test are identified. Corresponding documents for Releases B, C, and D will be provided at appropriate IDRs.

Submittal of Volume 1 and 2 of DID 319/DV1 meets the milestone specified in the Contract Data Requirements List (CDRL) of NASA contract NAS5060000. It is anticipated that this submittal will be reviewed during the appropriate segment- or system-level Preliminary Design Review (PDR), and that subsequent changes to the document will be incorporated into a resubmittal according to a schedule mutually agreed to by Goddard Space Flight Center (GSFC) and ECS.

1.5 Document Organization

This document is organized into five sections:

Section 1 Introduction, contains the identification, scope, purpose and objectives, status and schedule, and document organization.

Section 2 Related Documents, provides a bibliography of parent, applicable and reference documents for the SDP Segment Integration and Test Document.

Section 3 SDP Segment Integration and Test Overview, describes the process used to integrate and test the SDP Segment and subsystems.

Section 4 SDP Segment Test Descriptions, describes the specific segment level thread and build tests, which will be used to verify the functionality of the SDPS.

Appendix A Test Tool Requirements, contains a list and brief description of the test tools needed for SDPS Integration and Test Tools.

Appendix B Verification Traceability Matrix, contains the requirements traceability matrix, mapping test cases to SDPS Level 4 requirements.

A list of acronyms and abbreviations is contained at the end of this document.

2. Related Documents

2.1 Parent Documents

The parent document is the document from which this SDPS Integration and Test Plan (Release A) scope and content are derived.

101-101-MG1-001	Project Management Plan for the EOSDIS Core System
194-107-MG1-010	Level 1 Master Schedule for the ECS Project
194-401-VE1-002	Verification Plan for the ECS Project, Final
194-501-PA1-001	Earth Observing System (EOS) Performance Assurance Requirements for the EOSDIS Core System (ECS)
304-CD-002-002	Science Data Processing Segment (SDPS) Requirements Specification for the ECS Project, Final Copy
423-41-01	EOSDIS Core System Statement of Work
423-41-03	EOSDIS Core System Contract Data Requirements List Document

2.2 Applicable Documents

The following documents are referenced within this SDPS Integration and Test Plan (Release A), or are directly applicable, or contain policies or other directive matters that are binding upon the content of this volume.

194-201-SE1-001	Systems Engineering Plan for the ECS Project
301-CD-002-003	System Implementation Plan for the ECS Project
194-207-SE1-001	System Design Specification for the ECS Project
305-CD-002-002	Science Data Processing Segment (SDPS) Design Specification for the ECS Project, Final Copy
219-CD-018-002	Interface Requirements Document Between EOSDIS Core System (ECS) and Tropical Rainfall Measuring Mission (TRMM) Ground System
423-41-02	Functional and Performance Requirements Specification [F&PRS] for the Earth Observing System Data and Information System (EOSDIS) Core System, Revision A

2.3 Information Documents

2.3.1 Information Documents Referenced

The following documents are referenced herein and, amplify or clarify the information presented in this document. These documents are not binding on the content of the ECS SDPS Integration and Test Plan (IR1).

194-102-MG1-001	Configuration Management Plan for the ECS Project
193-103-MG3-001	Configuration Management Procedures for the ECS Project, 10/93
402-CD-002-002	System Integration and Test Plan for the ECS Project
409-CD-001-003	Overall System Acceptance Test Plan for the ECS Project
194-415-VE1-002	Acceptance Testing Management Plan for the ECS Project, Final

2.3.2 Information Documents Not Referenced

The following documents, although not referenced herein and/or not directly applicable, do amplify or clarify the information presented in this document. These documents are not binding on the content of the SDPS Integration and Test Plan (Release A).

104-CD-001-003	Data Management Plan for the ECS Project
193-105-MG3-001	Data Management Procedures for the ECS Project

3. SDPS Integration and Test Overview

This section contains an overview of the approach taken by the Science Data Processing Integration and Test organization to ensure complete and thorough testing at the segment level. Included is information concerning the SDPS I&T environment, schedules and verification activities and responsibilities.

3.1 SDPS I&T and the ECS Environment

3.1.1 SDPS Functional Overview

ECS is comprised of three segments: the Flight Operations Segment (FOS), Communications and System Management Segment (CSMS), and Science Data Processing Segment (SPDS). Each of these segments are decomposed into subsystems and the subsystems are composed of Computer Software Configuration Items (CSCIs). This document will test the design and implementation of the SDPS CSCI's and their integration into SDPS subsystems.

The CSCI's for SDPS at Release A are listed in Table 3-1. Included are CSCI names and SDPS subsystems. A short description of each CSCI is given following Table 3-1.

Table 3-1. SDPS Release A CSCIs

CI	Id	Subsystem
Desktop	DESKT	Client
Workbench	WKBCH	Client
Advertising Service	ADSRV	Interoperability
Local Information Manager	LIMGR	Data Management
Data Dictionary	DDICT	Data Management
Document Data Server	DDSRV	Data Server
Science Data Server	SDSRV	Data Server
Storage Management Software	STMGT	Data Server
Data Distribution Services	DDIST	Data Server
Ingest Services	IINGST	Ingest
Production Planning	PLANG	Planning
Processing	PRONG	Processing
Science Data Pre-Processing	DPREP	Processing
Algorithm I&T	AITTL	Processing
Version 0 Interoperability Gateway	GTWAY	Interoperability

Desktop CI–The Desktop CI provides a general framework for organizing and presenting the various application objects (data and programs) with which a user interfaces.

Workbench CI–The Workbench CI provides tools for helping users to access, analyze, and disseminate data to colleagues throughout the scientific community.

Advertising Service CI–The Advertising CI provides the interfaces to support Client defined interactive browsing and searching of advertisements

Local Information Manager CI–The LIM CI utilizes an integrated schema to provide locally optimized access to the data servers at a given site.

Data Dictionary CI–The Data Dictionary CI manages and provides user access to databases containing information about data. The Data Dictionary provides access to definitions, detailed descriptions of data types, attributes, operations, keywords, terms, etc.

Science Data Server CI–The Science Data Server CI provides access to a collection of earth science data and related data. The functions offered by the Science Data Server CI are defined in the Data Server schema. The Data Server makes its data collections and services known to the ECS community by advertising itself to the Advertising Service (also called Advertisements).

Document Data Server CI–The Document Data Server CI provides access to a collection of documents using protocols which are specifically designed for document handling (i.e., HTTP).

Storage Management Software CI–The Storage Management Software CI provides services for storing, accessing, and managing data objects in support of the data servers, using a hierarchy of storage capabilities.

Data Distribution Services CI–The Data Distribution CI provides the Data Server and its Operations users the capability to monitor and control processing for distribution requests.

Ingest Services CI–The Ingest CI is responsible for the receipt of data arriving at a site and the physical placement of data into the site's storage hierarchy.

Production Planning CI–The Production Planning CI supports the site operations staff in developing and optimizing a production plan against available resources, and managing the implementation of the plan.

Processing CI - The Processing CI provides functionality for managing, queuing and executing processing requests on the processing resources at a provider site.

Science Data Pre-Processing CI–The Science Data Pre-Processing CI provides pre-processing for science data, ancillary data, and orbit/attitude data, either as it is enters the system (Ingest) or as it is being staged for use in product generation.

Algorithm I&T CI–The Algorithm Integration and Test CI facilitates the integration of science processing algorithms and user methods into the operational environment of a DAAC.

Gateway CI–The Gateway CI provides bi-directional interoperability with V0 for user authentication, inventory level queries, browse requests and product orders.

3.1.2 SDPS I&T Relationship to other Test Groups

The SDPS I&T organization is responsible for integration and test at the segment level. This includes acceptance of software components upon completion of unit testing, integration of these components into segment subsystems, complete and thorough testing of the integrated software, and recording and reporting of any problems encountered during testing. Integrated software units are tested against Level 4 requirements documented in the Segment/Element Requirements Specification.

Upon completion of SDPS testing, the software is delivered to the ECS System I&T organization. This group is responsible for integration and test at the system level. This includes acceptance of all segment software including FOS, CSMS, and SDPS segments. Testing is done to confirm compliance to Level 3 requirements documented in the Functional and Performance Requirements Specification (423-41-02) and the System Design Specification (194-207-SE1-001).

The SDPS I&T group interacts and supports other ECS and independent test organizations. This includes the Independent Acceptance Test Organization (IATO), and EOSDIS Independent Verification and Validation (IV&V) Contractor. The IATO monitors segment tests and identifies any Level 3 requirements that can be verified through analysis of segment test results. The IV&V contractor monitors ECS verification activities.

SDPS I&T includes segment testing of SCF version of the SDP Toolkits. This testing is documented in the SCF Toolkit Segment/Element Integration & Test Notebooks.

3.2 SDPS I&T Testing Approach

The SDPS I&T approach involves the incremental integration of software components. The following sections discuss the SDPS I&T approach for Release A.

3.2.1 Segment I&T Functional Testing

SDPS I&T tests will integrate and verify SDPS CSCI functionality on an incremental basis. As software and hardware items complete unit testing, the SDPS I&T organization incrementally assembles lower-level functionality into progressively higher levels until ultimately a segment is completely integrated and tested. SDPS functional testing is based on the concept of "threads" and "builds" (see Section 3.2.2). Functional testing verifies Level 4 functional requirements.

3.2.2 SDPS Thread/Build Methodology

The thread/build concept, which is based on the incremental aggregation of functions, is used to plan SDPS I&T activities. An SDPS thread is the set of components (software, hardware and data) and operational procedures that implement a function or set of functions at the segment level. Threads are tested individually to facilitate Level 4 requirements verification and to isolate software problems. A build is an assemblage of threads to produce a gradual buildup of segment capabilities. This orderly progression of combining lower level software and/or hardware items to form higher level items with broader capability is the basis of SDPS integration. SPDS builds are combined with other SDPS builds and threads to produce higher level builds. Verification of

threads and builds is accomplished at progressively higher and higher levels as the SDPS software is assembled for each release.

SDPS thread/build diagrams are developed for each Release. The thread/build diagram for Release A is presented in Figure 3-1. Threads and builds are defined by examining SDPS CSCI's, Level 4 requirements and segment/element design specifications. The SDPS I&T organization with support from the SDPS development community, logically groups the SDPS into functional categories divided along noticeable boundaries. These categories are the basis for SDPS threads. Threads are combined to define SDPS builds which include several functions. The thread/build diagram for each SDPS release acts as a catalyst for definition of SDPS test case definition. From each build and thread on the diagram, test cases are developed. These test cases provide the basis for development of step-by-step test instruction to be documented as SDPS test procedures.

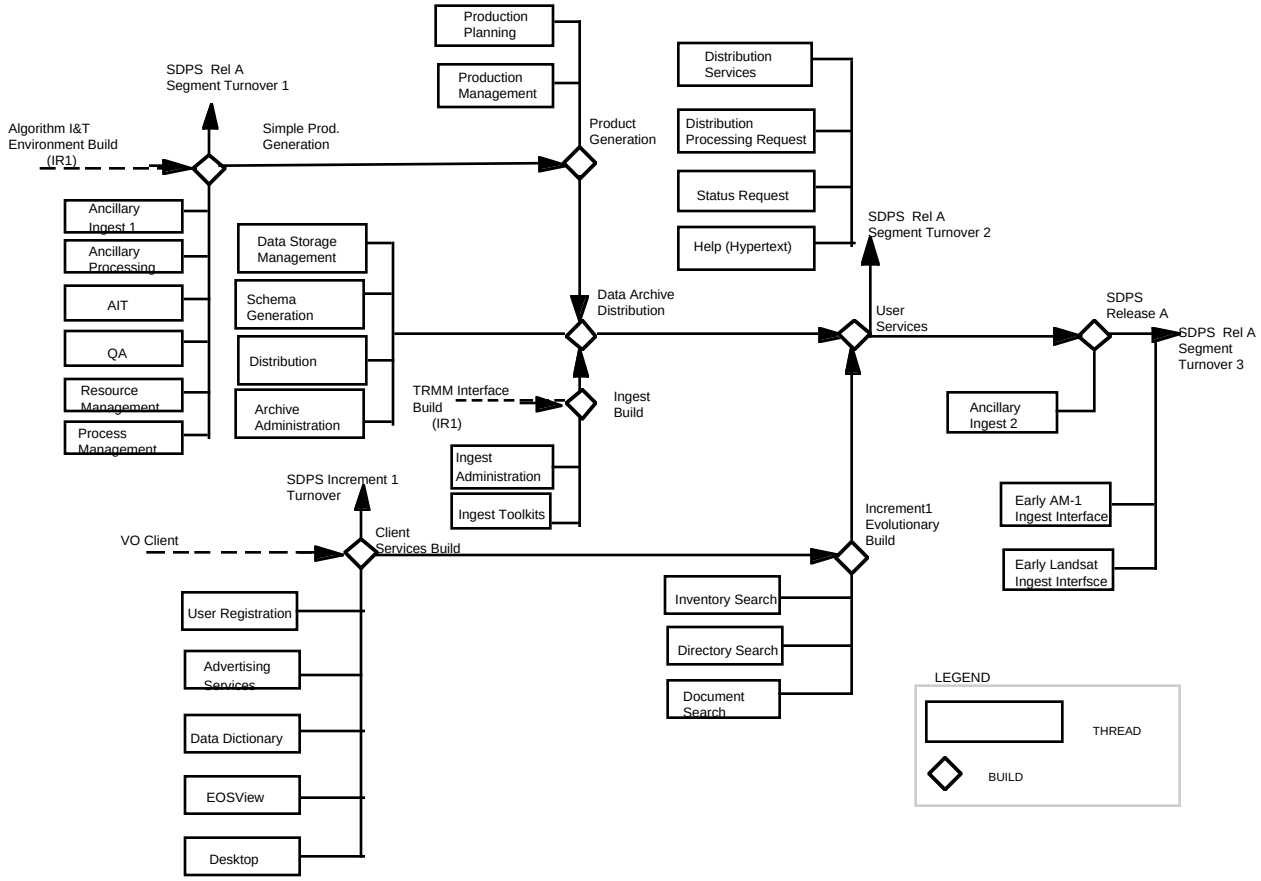

Figure 3-1. Release A SDPS Thread/Build Diagram

3.3 SDPS I&T Test Verification

The following sections define responsibilities and activities of the SDPS I&T organization. SDPS I&T verification includes definition of verification methods, post test analysis, regression testing, and verification resources.

3.3.1 Verification Methods

The four verifications methods used for SDPS I&T include: inspection, analysis, demonstration, and test.

- Inspection. The visual, manual examination of the verification item and comparison to the applicable requirement or other compliance documentation, such as engineering drawings.
- Analysis. Technical or mathematical evaluation based on calculation, interpolation, or other analytical methods.
- Demonstration. Observation of the functional operation of the verification item in a controlled environment to yield qualitative results without the use of elaborate instrumentation, procedure, or special test equipment.
- Test. A procedure or action taken to determine under real or simulated conditions the capabilities, limitations, characteristics, effectiveness, reliability, or suitability of a material, device, system, or method.

Each SDPS Level 4 requirement is tested by one or more of these methods.

3.3.2 Post Test Analysis

Post-test analysis includes data reduction and comparison of actual results against expected results. Any post test analysis required for SDPS I&T is performed by the SDPS I&T organization with support from the user and development communities if appropriate and necessary. Methods for performing post-test analysis is documented in the Segment Integration and Test Procedures on a test by test basis. Post-test analysis is documented in SDPS I&T Reports. Data, data logs, event logs and any other test output required for post test analysis will be captured and stored under Configuration Management (CM) control.

3.3.3 Regression Testing

Regression testing is supplemental testing performed at any time upon any thread or build testing during SDPS I&T testing to ensure that existing software is not adversely affected by modified or new software. SDPS I&T members are responsible for the planning, documenting, executing and reporting of all regression testing. Automated test tools are used whenever possible to conduct regression testing by the SDPS I&T organization. This ensures that regression tests duplicate initial test procedures.

Regression testing is executed when new versions of software are delivered by the unit test team due to software changes or operational enhancements. Analysis is performed by the SDPS I&T team to determine the extent of regression testing required. The thread/build approach lends

itself to regression testing. Builds, regression test components tested in previous threads or builds. Regression test analysis determines if the software changes or operational enhancements require regression testing all prior threads and build or a subset. Therefore no special indication for this type of regression testing is included on the thread/build diagram.

For Release A, regression testing is executed to integrate IR1 functionality with Release A functionality. Regression testing also occurs due to any changes or enhancements to incremental software due to Evaluation Package 6 (EP6) evaluation results.

SDPS I&T is responsible for reporting any discrepancies encountered during segment regression testing. Discrepancies resulting from any other level of testing (i.e., System Test, Acceptance Test) which results in modification a the unit level, will be regression tested at the segment level by the SDPS I&T organization.

3.3.4 Verification Resources

The following paragraphs in this section introduce and identify the resources necessary to accomplish SDPS I&T. Included are identification of test location and hardware and software configurations. Also discussed is the use of automated test tools, discrepancy reporting, and the role of CM in SDPS I&T.

3.3.4.1 Testing Facilities

The ECS Development Facility (EDF) located at the ECS facility in Landover, Md. has been designated as the testing facility for SDPS I&T. ECS will be solely responsible for the test environment. This includes installation, initial checkout and startup, upgrades/version control, access control, and maintenance.

3.3.4.1.1 Hardware Items

Upon Release A test execution the EDF hardware configuration is as shown in the hardware layouts found in the appendixes of the SDPS Segment/Element Design Specification for the ECS Project (305-CD-002-001).

3.3.4.1.2 Test Tools and Test Data

SDPS I&T uses test tools for test development, test execution, and test management. Whenever possible test tools from the unit development and unit test environment are used. Additional test tools are COTS products or are developed by the Segment I&T organization. For Release A, SDPS I&T will use the following tools in support of the test environment:

- XRunner and Load Runner–Graphical User Interface (GUI) capture and playback tool used to develop test scripts and facilitate test execution including regression testing
- Requirements Traceability Management (RTM) Tool–This tool provides the means to create, populate, and maintain a data base containing requirements, verification status, and design information. RTM provides the means for SDPS I&T to map Level 4 requirements to SDPS test cases.

- ClearCase Configuration Management Tool–CM tool used to support configuration management for developing, testing and maintaining software.
- Distributed Defect Tracking System (DDTs)–DDTs is the ECS Noncomformance Reporting and Corrective Action (NRCA) system. This discrepancy tracking tool is used to record, track, and report nonconformances encountered during a test session.
- Test management tools–These includes tools to record test results and to aid in test result data analysis. These tools include loggers and other recording devices. Some file comparison utility is needed to compare data output with data inputs. A data reduction utility is needed to reduce large amounts of output data, to some meaningful evaluation of the data quality. These test tools for Release A I&T will be identified in Appendix A of this document.
- Other test specific tools–Specific test tools and test data needed for Release A SDPS I&T, such as data interface simulators and data generators, are identified in the test cases and Appendix A of this document.

3.3.4.3 Discrepancy Reporting and Resolution

SDPS is required to report any noncompliance to Level 4 requirements encountered during SDPS I&T. SDPS I&T will use the ECS selected COTS tool (see Section 3.3.4.1.2) for tracking nonconformances. It is the responsibility of the SDPS I&T organization to ensure all testers are trained to use the Noncomformance Reporting and Corrective Action (NRCA) system. The SDPS I&T staff will have the proper authority and access to the NCRA tool before any SDPS I&T activities begin. It is the responsibility of each tester to properly enter all discrepancies encountered during testing into the NRCA system. Once the discrepancy is corrected, regression testing is done to make sure no new problems have been introduced by the fix. If necessary, the tester will develop additional tests to ensure the problem is satisfactorily corrected. Quality Assurance (QA) representatives are responsible for audits to ensure reported nonconformances are resolved.

3.3.4.4 Test Items Under Configuration Control

ECS SDPS I&T test documents are controlled but the Data Management Organization (DMO). Software and hardware configurations under test, test data sets, and software and hardware tools used for testing are maintained by CM. SDPS I&T uses the ClearCase tool for configuration management control. It is the responsibility of the CM organization to train all testers to use the CM tool. The SDPS I&T staff will have the proper authority and access to unit tested components using the CM tool before any SDPS I&T activities begin. Unit-tested components entered in the CM system are accessed by the SDPS testers. These components are verified and integrated by the SDPS I&T staff. Verified segment threads and builds are entered into the CM system upon successful completion of SDPS I&T verification activities. These are made available to the System I&T test team.

If any discrepancies (see Section 3.3.4.3) are found during SDPS I&T, CM tracks the product changes and versions that result from correcting discrepancies.

3.4 SDPS I&T Roles and Responsibilities

The SDPS I&T roles include the following test positions and their corresponding responsibilities.

Test Conductor–This will include an SDPS I&T member to conduct test execution. This person is responsible for establishing a sound test configuration before testing takes place. This person is also responsible for collecting test outputs and recording test results. Any problems encountered during testing are entered into the NRCA System by the test conductor.

Test Participants–This will include SDPS I&T members and members of the segment development organization to perform software integration and support test execution. Other supporting organizations include Maintenance and Operations (M&O) and Configuration and Data Management (CM). The ECS maintenance and operations organization will support the test members in the installation and configuration of the test environment and will support the test team if any system faults are encountered during testing. This would include such instances as computer software or hardware failures which cause the test configuration to be corrupted. M&O will be responsible for reconfiguring the system as needed to continue testing. CM will provide a controlled environment for the storing and maintaining of information about the test environment including hardware, software and test tool environments. CM also stores and catalogs test documents and test input data and output data.

Test Witnesses–Individuals invited to directly observe test conduct. This includes members from the System I&T organization and the IATO as appropriate in support of System I&T and IATO testing. ESDIS and IV&V personnel are also invited to witness segment test demonstrations.

Test Monitors–The Quality Assurance organization is responsible for reviewing test data, materials, and documentation. These individuals need not be present during test conduct.

3.5 SDPS I&T Release Testing

SDPS I&T verification reviews occur for each ECS formal release. Verification reviews for SDPS segment testing, includes Test Readiness Reviews (TRRs) and Element Test Reviews (ETRs).

TRRs are informal reviews conducted incrementally as portions of the SDPS are unit tested. As software units for each Release are developed and unit tested, informal TRRs are held to determine if the software units are "ready" for integration and test. Test procedures are reviewed at each TRR to determine if they are complete. If the software and test procedures are deemed "ready" the SDPS I&T organization integrates and tests the software.

ETRs are informal reviews conducted incrementally as portions of the SDPS are integrated and tested. At each ETR the results of the portion of the SDPS just integrated and tested are reviewed. The reviews ensure that components are properly integrated and that segment level requirements are met. Upon each successful ETR, software is turned over to the System I&T organization. T here are four scheduled "Turnovers" for Release A. They include:

- SDPS Increment 1 Turnover
- SDPS Release A Segment Turnover 1

- SDPS Release A Segment Turnover 2
- SDPS Release A Segment Turnover 3

When all SDPS software development for Release A is complete and unit test is done, a formal TRR is conducted to determine test readiness of the whole SDP Segment. When all SDPS I&T activities for Release A are complete, a final formal ETR is held to review the results of all integration and test activities. After the final ETR, SDPS software is delivered to System I&T for integration with other segment software.

3.6 SDPS I&T Schedule Overview

3.6.1 General Schedule

The following figure (Figure 3-2) shows SDPS I&T activity across all ECS Releases. Program releases are indicated in the left most column of the chart. Program milestones are indicated across the top of the chart. For each release, SDPS I&T activities performed for each milestone are indicated. Dates for the milestones can be found in the ECS Release Plan (Contract # 222-TP-003-005).

3.6.2 SDPS I&T for Release A

The following figure (Figure 3-3 shows SDPS I&T activity for Release A.

Release	PDR	IDR	CDR	TRR	ETR	CSR
8	–Produce IR1 SDPS I&T Plan (DID 319)	n/a	–Produce IR1 SDPS I&T Procedures (draft) (DID 322/DV3)	n/a	–Conduct a final ETR for entire segment for IR1	–IR1 SDPS I&T Reports (DID 324/DV3)
A	–Produce Release A SDPS I&T Plan (DID 319)	n/a	–Produce Release A SDPS I&T Procedures (draft) (DID 322/DV3)	–Conduct TRR upon completion of all unit development for Release A –Produce Release A SDPS I&T Procedures (DID 322/DV3)	–Conduct ETR upon completion of each segment level thread/build Turnover to the system test organization for Release A –Conduct a final ETR for entire segment for Release A	–Release A SDPS I&T Reports (DID 324/DV3)
B	n/a	–Produce Release B SDPS I&T Plan (DID 319)	–Produce Release B SDPS I&T Procedures (draft) (DID 322/DV3)	–Conduct TRR upon completion of all unit development for Release B –Produce Release B SDPS I&T Procedures (DID 322/DV3)	–Conduct ETR upon completion of each segment level thread/build Turnover to the system test organization for Release B –Conduct a final ETR for entire segment for Release B	–Release B SDPS I&T Reports (DID 324/DV3)
C	n/a	–Produce Release C SDPS I&T Plan (DID 319)	–Produce Release C SDPS I&T Procedures (draft) (DID 322/DV3)	–Conduct TRR upon completion of all unit development for Release C –Produce Release C SDPS I&T Procedures (DID 322/DV3)	–Conduct ETR upon completion of each segment level thread/build Turnover to the system test organization for Release C –Conduct a final ETR for entire segment for Release C	–Release C SDPS I&T Reports (DID 324/DV3)
D	n/a	–Produce Release D SDPS I&T Plan (DID 319)	–Produce Release D SDPS I&T Procedures (draft) (DID 322/DV3)	–Conduct TRR upon completion of all unit development for Release D –Produce Release D SDPS I&T Procedures (DID 322/DV3)	–Conduct ETR upon completion of each segment level thread/build Turnover to the system test organization for Release D –Conduct a final ETR for entire segment for Release D	–Release D SDPS I&T Reports (DID 324/DV3)

Figure 3-2. SDPS I&T Release Schedule

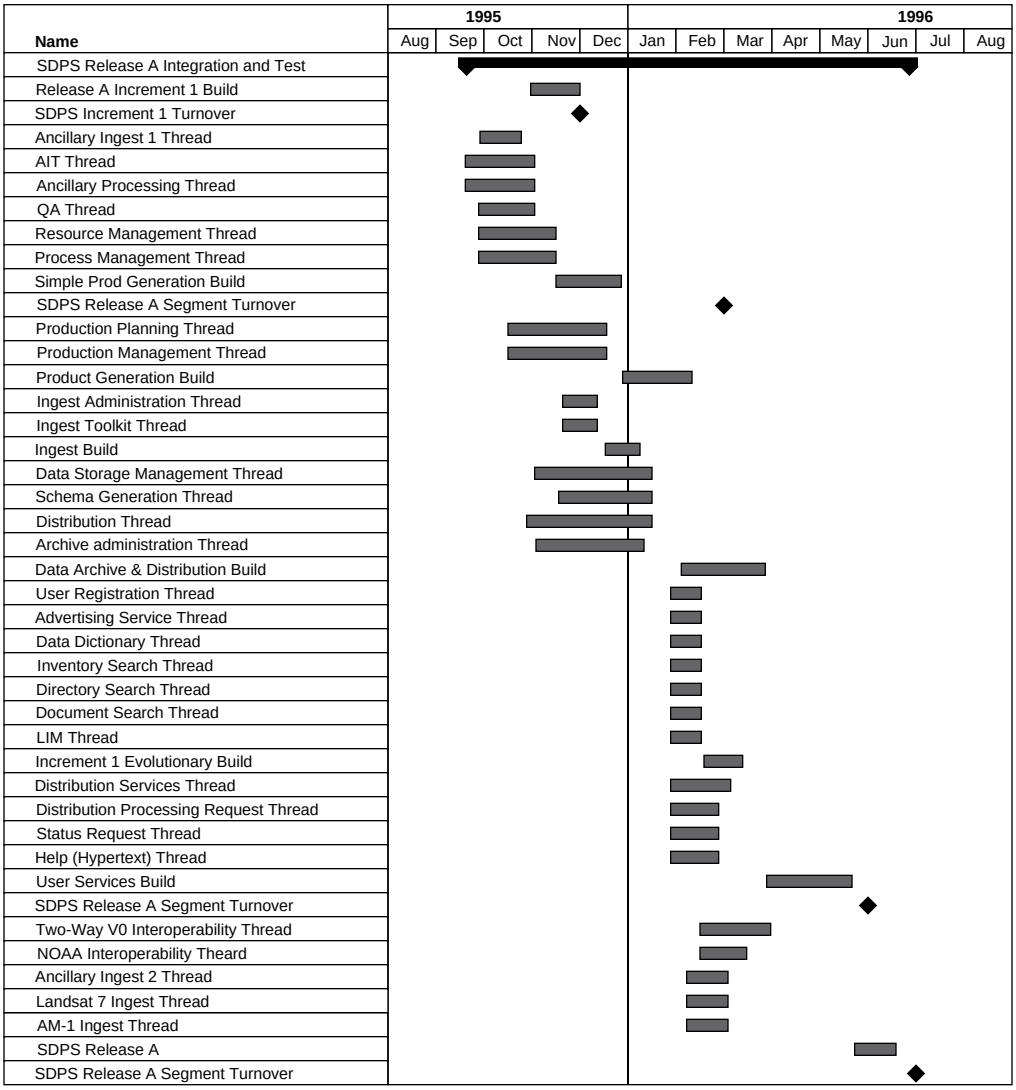

Figure 3-3. SDPS I&T Release A Schedule

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4. SDPS Release A Test Descriptions

The following sections identify the segment level threads and builds within the Science and Data Processing Segment for Release A (see Figure 3.2-1). First, threads are identified. Threads are the aggregation of unit tested components (CSCs, HWCIs, COTS). Each thread demonstrates an SDPS function. Builds are the integration of threads and are identified after each series of threads which make up a build. For each thread and/or build a brief description is given identifying functionality to be tested. Following each description, test cases are identified. These test cases verify segment capabilities allocated to the thread or build. The primary objective of each test case is to demonstrate and evaluate the capabilities of each function as stated in Level 4 requirements.

4.1 Simple Product Generation Tests

The following subsections include the threads and builds identified to support testing of Simple Product Generation. Simple Product Generation testing includes the following threads and builds:

- Ancillary Ingest 1 Thread
- Ancillary Pre-processing Thread
- Resource Management Thread
- Process Management Thread
- AIT Thread
- QA Thread
- Simple Product Generation Build

4.1.1 Ancillary Ingest 1 Thread (TS006)

This thread demonstrates the ability to ingest the ancillary data to support engineering and instrument data in the processing of science products. This includes receiving and identifying the ancillary data, and generating metadata.

4.1.1.1 Test Case 1: Ingest of Orbit Data Test (TS006.001)

Test Case Description

This test verifies the ability to ingest TONS platform ancillary orbit data which is used for EOS-AM1 preprocessing, and FDF definitive orbit data which is used for TRMM platform Level 0 data processing. A notification that advises the availability of ancillary data for ingest is received by ECS. ECS accesses the ancillary data and attached header information, QA is performed, and metadata is extracted automatically and placed into local storage. A data receipt log is updated and acknowledgment is sent to the ingest data source.

Test Configuration

Hardware - workstation, client host, data storage devices.

Software - Ingest Client Interface, Automated Network Ingest Client, Ingest Data Preprocessing

Data - TONS platform ancillary packets (TRMM and EOS-AM1)

Test Support Required

N/A

Test Input

Inputs to this test include: TONS platform Ancillary orbit data, Definitive Obit Data and Data Availability Schedules.

Expected Test Outputs

Ancillary Metadata attributes, Orbit Data file, Data Receipt Notifications, Status logs

Success Criteria

For each orbit data file made available to the ingest subsystem, a successful ingest shall take place of that file, with storage on local disk space (as simulation of Data Server archival). Extraction of associated metadata and production of a data receipt notification shall take place.

4.1.1.2 Test Case 2: Ingest of Attitude Data Test (TS006.002)

Test Case Description

This test verifies the ability to ingest TONS platform ancillary attitude data which is used for EOS-AM1 preprocessing and TRMM on-board attitude data which is used for Level 0 processing. Notification of availability of ancillary data for ingest is received by ECS which activates the automatic execution for planning the proper time for data ingestion. The system automatically accesses the ancillary data and attached header information, QA is performed, and metadata is extracted automatically. Upon a successful receipt of the orbit data into the ECS system, associated metadata is placed into local storage. A data receipt log is updated and acknowledgment is sent to the ingest data source.

Test Configuration

Hardware - workstation, client host, data storage devices.

Software - Ingest Client Interface, Automated Network Ingest Client, Ingest Data Preprocessing

Data - TONS platform ancillary packets (TRMM and EOS-AM1)

Test Support Required

N/A

Test Input

Inputs to this test include: TONS platform Ancillary Attitude Data files.

Expected Test Outputs

Ancillary Metadata attributes, Data Receipt Notification and Status Logs

Success Criteria

For each attitude data file made available to the ingest subsystem service, a successful ingest shall take place of that file, with storage on a local disk space (as simulation of Data Server archival). Extraction of associated metadata and production of data receipt notification shall take place.

4.1.1.3 Test Case 3: Ingest of NOAA NMC Data Test (TS006.003)

Test Case Description

This test case verifies the capability to ingest NOAA NMC GRIB data, NOAA NMC Reynolds Blended SSST data and NOAA NMC BUFR formatted gridded products. NOAA NMC data is required for CERES processing in release A. Data received from NOAA NMC is ingested on a data driven basis. Upon successful receipt of the NOAA data, a data receipt log is updated, associated metadata into local storage, preliminary QA is performed, and notice is sent to the ADC to confirm successful receipt.

Test Configuration

Hardware - workstation, client host, data storage devices.

Software - Ingest Client Interface, Polling Ingest Client, Ingest Data Preprocessing

Data - NOAA NMC GRIB, NOAA NMC Reynolds Blended SSST and NOAA NMC BUFR data

Test Support Required

N/A

Test Input

Inputs to this test are: NOAA - NMC data files

Expected Test Outputs

Ancillary metadata attributes, Data receipt Notification, Status logs

Success Criteria

For each NOAA NMC data file made available, the same shall be successfully ingested, stored on local disk (as simulation of Data Server services), ancillary metadata extracted and a data receipt notification shall be generated.

4.1.1.4 Test Case 4: Ingest of IERS and USNO Data Test (TS006.004)

Test Case Description

This test case verifies the capability to ingest Bulletins A and B from IERS and USNO which contain time related data. A data notice is received by ECS, at a later time, the data is received at the ECS via the CBI (a TCP/IP socket for electronic ftp transmission), and header information is attached. A data receipt log is updated, associated metadata is inserted into the local storage, preliminary QA is performed, and a DNN is sent to verify successful receipt.

Test Configuration

Hardware - workstation, client host, data storage devices.

Software - Ingest Client Interface, Automated Ingest Client, Ingest Data Preprocessing

Data - US Naval Observatory (USNO) and International Earth Rotation Service (IERS) Bulletins A & B Ancillary files

Test Support Required

N/A

Test Input

Input to this test is USNO and IERS ancillary data files and Data availability schedules.

Expected Test Outputs

Ancillary metadata attributes, Data receipt notification, updated status logs

Success Criteria

For each USNO/IERS ancillary data file made available, there should be a successful ingest, and storage to a local disk (as simulated Data Server archival), ancillary metadata extraction and the production of a Data Receipt Notification.

4.1.1.5 Test Case 5: Ingest of SDPF Level 0 Data Test (TS006.005)

Test Case Description

This test case verifies the capability to ingest SDPF Level 0 telemetry packets. Upon receipt of telemetry packages at the SDPF, a DAN is sent to ECS. ECS then pulls (ingests) the Level 0 data. A data receipt log is updated, associated metadata is placed on local storage, preliminary QA is performed, and a DNN is sent as acknowledgment of successful receipt.

Test Configuration

Hardware - workstation, client host, data storage devices.

Software - Ingest Client Interface, Automated Ingest Client, Ingest Data Preprocessing

Data - TRMM Level 0 data

Test Support Required

N/A

Test Input

Input to this test is a SDPF Level 0 telemetry packet, Data Availability notice

Expected Test Outputs

Ancillary metadata attributes, Data Receipt Notification, Status Logs

Success Criteria

For each Level 0 telemetry packet made available, the same shall be successfully ingested, stored on local disk (as simulation of Data Server archival), metadata extracted, and a Data receipt notification generated.

4.1.1.6 Test Case 6: Ingest of EDOS Level 0 Data Hard Media Test (TS006.006)

Test Case Description

This test case verifies the capability to ingest EDOS Level 0 telemetry packets. EDOS Level 0 Data products are received into the ECS system via hard media (i.e., tape via postal delivery). The hard media is used to ingest the Level 0 data into the ECS system, a data receipt log is updated, and preliminary QA is performed.

Test Configuration

Hardware - workstation, client host, data storage devices.

Software - Ingest Client Interface, Automated Ingest Client, Ingest Data Preprocessing

Data - EOS-AM1 Level 0 data

Test Support Required

N/A

Test Input

EDOS Level 0 data files (in tape format)

Expected Test Outputs

Ancillary metadata attributes, Status Logs

Success Criteria

For each EDOS Level 0 data file received (via tape), there shall be a successful ingest, storage on local disk (simulation of Data Server archival), and metadata extraction is completed.

4.1.1.7 Test Case 7: Ingest of Non-Standard EOS DAAC Data Test (TS006.007)

Test Case Description

This test case verifies the capability to ingest non-standard EOS DAAC data. This includes TOMS and SAGE products. Upon successful receipt of the non-standard EOS DAAC data, a data receipt log is updated, associated metadata is generated, and preliminary QA is performed.

Test Configuration

Hardware - workstation, client host, ingest peripherals.

Software - Ingest Client Interface, Automated Ingest Client, Ingest Data Preprocessing

Data - L0 Data Ingest, TOMS SAGE non-standard EOS DAAC data

Test Support Required

N/A

Test Input

TRMM Level 0 data

Expected Test Outputs

Ancillary Metadata attributes, Status Logs

Success Criteria

For each non-standard EOS DAAC data file ingested, associated metadata should be generated and status logs shall be generated/updated.

4.1.2 Ancillary Pre-processing Thread (TS007)

This thread demonstrates the ability to preprocess the ancillary data to support engineering and instrument data in the processing of science products. This includes receiving and identifying the ancillary data, for data pre-processing. Pre-processing is defined as changes to data which are not scientific in nature. These changes facilitate ease of use of the data in the processing system and data formatting for interface with the SDP toolkit tools.

4.1.2.1 Test Case 1: Reformatting NMC Data Test (TS007.001)

Test Case Description

This test case verifies the capability to reformat NOAA NMC GRIB, into HDF-EOS gridded standard format, and to create metadata. Translation of the NOAA formats into HDF-EOS format and reformatting of NOAA NMC data prepares it for available services offered by the SDP Toolkit. Critical inventory core metadata is created and stored, and the HDF-EOS formatted NOAA data is stored to local storage as a simulated access request message to the Data Server.

Test Configuration

Hardware - workstation, local disk storage

Software - NOAA External Ancillary Data Preprocessor CSC

Data - NOAA NMC ancillary data

Test Support Required

SDP toolkit

Test Input

NOAA NMC ancillary data and parameters for processing

Expected Test Outputs

HDF-EOS formatted NOAA NMC data sets, metadata

Success Criteria

For each NOAA NMC data sets and parameter set submitted to this test, a HDF-EOS formatted data sets shall be produced and stored locally with metadata produced. The formatted data sets is verified to assure that data content is not affected and metadata adhere to established criteria.

4.1.2.2 Test Case 2: Reformatting NESDIS Data Test (TS007.002)

Test Case Description

This test case verifies the capability to reformat NOAA NESDIS data from "Master Map" format to HDF-EOS gridded format and to create associated metadata. Reformatting of NOAA NESDIS data prepares it for available services offered by the SDP Toolkit. Critical inventory core metadata is created, and the HDF-EOS formatted NOAA data is stored to local storage as a simulated access request message to the Data server.

Test Configuration

Hardware - workstation, local disk storage

Software - NOAA External Ancillary Preprocessor CSC

Data - NOAA NESDIS data

Test Support Required

SDP Toolkit

Test Input

NOAA NESDIS data

Expected Test Outputs

HDF-EOS formatted NESDIS data sets, metadata

Success Criteria

For each NOAA NESDIS data sets submitted to this test, a HDF-EOS formatted data sets shall be produced with core metadata and placed on local storage. The formatted data set is verified to assure that data content is not affected and metadata adhere to established criteria.

4.1.2.3 Test Case 3: Transformation of IERS and USNO Data Test (TS007.003)

Test Case Description

This test case verifies that IERS (International Earth Rotation Service) and USNO (US Naval Observatory) data (also referred to collectively as Time Data) can be extracted and transformed into the "time file." IERS and USNO data are merged into one file at ingest, producing a small ASCII formatted text file. The required values like UTC to UT and leap seconds are extracted and converted into a single time file. This time file is created/appended to the geolocation ancillary files used to support the SDP toolkit geolocation tool. Metadata updates are made, the reformatted time data is stored to local storage as a simulated access request message to the Data server.

Test Configuration

Hardware - workstation, local disk storage

Software - Time and Static External Ancillary Data Preprocessor CSC

Data - IERS, USNO time data

Test Support Required

SDP toolkit

Test Input

USNO and IERS data sets

Expected Test Outputs

IERS and USNO data sets transformed into a 'time file', metadata

Success Criteria

For each IERS and USNO data set submitted to this test, a 'time file' shall be produced with core metadata and placed on local storage as simulated access to the Data Server. The 'time file' are verified to assure that data content is not affected and metadata adhere to established criteria.

4.1.2.4 Test Case 4: Convert Non-Standard EOS Data Products Test (TS007.004)

Test Case Description

This test case verifies the capability to convert non-standard EOS products to a format acceptable to the SDP Toolkit and to create associated metadata.

Test Configuration

Hardware - workstation, local disk storage

Software - Time and Static External Ancillary Data Preprocessor

Data - GFE Static data, TOMS data

Test Support Required

SDP toolkit

Test Input

USNO and IERS data sets

Expected Test Outputs

Formatted GFE Static and TOMS data sets, metadata

Success Criteria

For each Static and TOMS data set submitted to this test, a formatted data set shall be produced (that is acceptable to the SDP toolkit) with core metadata and placed on local storage as simulated access to the Data Server. The formatted data sets are verified to assure that data content is not affected and metadata adhere to established criteria.

4.1.2.5 Test Case 5: Adherence to SDP Toolkit Requirements for Ephemeris Data Test (TS007.005)

Test Case Description

This test case verifies the capability to reformat ephemeris data (attitude and orbit) into HDF-EOS format, that the necessary file attribute metadata required by the SDP Toolkit, and the minimum ephemeris data required by a product processing request is supplied. The file attributes and the minimum data required, coupled with Ephemeris data (provided in HDF-EOS format) provides a uniform interface for raw ephemeris data via the SDP toolkit. The required metadata allows the science software access to the ephemeris data via the SDP toolkit routine, PGS_EPH_Ephem_Attit. Orbit and attitude data is supplied in the native format of the host hardware. At a minimum, the following metadata shall be provided: Time range, orbit number range, platform. platform position/velocity vectors, and platform attitude/attitude rate data in Euler angles.

Test Configuration

Hardware - workstation, local disk storage

Software - FDF Ephemeris Data Preprocessor CSC

Data - Ephemeris data (EOS-AM and TRMM)

Test Support Required

SDP Toolkit

Test Input

Ephemeris Data in HDF-EOS format (EOS-AM and TRMM)

Expected Test Outputs

Reformatted (HDF-EOS) ephemeris data, ephemeris metadata attributes, specifically; time range, orbit number range, platform, platform position/velocity vectors, and platform attitude/attitude rate data in Euler angles.

Success Criteria

For each Ephemeris data set submitted to this test, the following metadata required by the SDP toolkit shall be returned: time range, orbit number range, platform position/velocity vectors, platform attitude, and platform attitude/attitude rate in Euler angles. Ephemeris data is verified to assure that data content is not affected. The required metadata is verified for adherence to established SDP Toolkit criteria by invoking the SDP toolkit utility 'chkeph,' which examines the ephemeris file header.

4.1.2.6 Test Case 6: Adherence to SDP Toolkit Requirements for Level 0 Data in General Test (TS007.006)

Test Case Description

This test case verifies the capability to supply Level 0 file attribute metadata required by the SDP Toolkit in the form of an EDOS-generated level 0 header. Thus providing a uniform interface for SDP toolkit and Level 0 data. The required metadata provides access to the science software via the SDP toolkit routines, PGS_IO_L0_*. This metadata is supplied by SDPS and EDOS at Ingest. At a minimum, the following metadata shall be provided: actual start and end time of staged Level 0 data, number of physical Level 0 data files staged, start and end time of Level 0 data requested by EOS investigators (through the ECS planner/scheduler), APID of each Level 0 data file (if files are APID unique), Orbit number of staged Level 0 data.

Test Configuration

Hardware - workstation, local disk storage

Software - SDPF L0 Preprocessor CSC, EDOS L0 Preprocessor CSC

Data - SDPF and EDOS Level 0 data

Test Support Required

SDP Toolkit

Test Input

TRMM (CERES and LIS) Level 0 data, EOS-AM Level 0 data

Expected Test Outputs

SFDU Level 0 header file, Level 0 metadata, specifically: start/end time (Level 0 data), number of physical data files staged, start/end time (Level 0 data requested by investigators), APID (of each Level 0 data file), orbit number, toolkit return messages, and test driver header data output files.

Success Criteria

For each Level 0 file submitted to this test, a SFDU level 0 header shall be created and file metadata: start/end time, number of physical data files staged, APID, and orbit number, required by the SDP Toolkit shall be returned. The SFDU level 0 header is verified to assure that data content is not affected. The required metadata is verified for adherence by invoking the SDP Toolkit routines PGS_IO_L0_Init and PGS_IO_L0_GetFileAttr.

4.1.2.7 Test Case 7: Adherence to SDP Toolkit Requirements for SDPF Level 0 Data Test (TS007.007)

Test Case Description

This test case verifies the capability to supply SDPF Level 0 data in a format required by the SDP toolkit. Thus providing a uniform interface for SDP toolkit and Level 0 data. The SDPF generated Level 0 production data files must provide unique APID's and must be provided as two separate files (a) a SFDU header file and (b) Data set file. The ability to produce Level 0 file attribute metadata required by the SDP Toolkit is also verified.

Test Configuration

Hardware - workstation, local disk storage

Software -SDPF L0 Preprocessor CSC

Data - SDPF Level 0 data

Test Support Required

SDP Toolkit

Test Input

TRMM (CERES and LIS) Level 0 data

Expected Test Outputs

SDPF generated Level 0 product data files, a SFDU header file and a Data set file with unique APID's, and metadata.

Success Criteria

For each SDPF Level 0 file submitted to this test, a unique APID shall be provided. The SDPF level 0 file will be separated into two separate files: 1) SFDU header file and 2) Data set file with all associated metadata generated. The SFDU level 0 header and data set file are verified to assure that data content is not affected and metadata adhere to established criteria.

4.1.2.8 Test Case 8: Adherence to SDP Toolkit Requirements for EDOS Level 0 Data Test(TS007.008)

Test Case Description

This test case verifies the capability to supply EDOS Level 0 data in a form required by the SDP toolkit. Thus providing a uniform interface for the SDP toolkit and Level 0 data. The EDOS generated Level 0 (PDS) product data set must be provided as header and quality parameters all contained in the same physical file as the level 0 telemetry packet.

Test Configuration

Hardware - workstation, local disk storage

Software - EDOS L0 Preprocessor CSC

Data - EDOS Level 0 data

Test Support Required

SDP Toolkit

Test Input

EOS-AM Level 0 data

Expected Test Outputs

EDOS generated Level 0 header and quality parameters in one file, Level 0 metadata.

Success Criteria

For each EDOS Level 0 file submitted to this test, a level 0 telemetry packet shall be produced that consists of a header and quality parameters. The Level 0 telemetry packet is verified to assure that data content is not affected and metadata adheres to established criteria.

4.1.3 AIT Thread (TS008)

This thread demonstrates that AIT Tools successfully support Version 1 Algorithm I & T. The AIT functions that were established during IR1 provided the capabilities for viewing scientific documentation, code standard checking, file comparison utility, configuration management, development tools, status tracking, profiling, report generation, Internet utilities, and viewing product metadata. The AIT tools added in Release A provide the following capabilities: static & dynamic code checking, data visualization, and display and update of PGE database entries. The

delivery of the documentation environment and POSIX OS utilities for a particular platform should coincide with the delivery of the tools.

4.1.3.1 Test Case 1: Science Software Static and Dynamic Code Checking Test (TS008.001)

Test Case Description

This test case verifies the capability to perform static and dynamic code checking of a Science Software delivery using performance analysis and resource management tools. The code checking consists of identifying memory leaks, argument list mismatches, out of bounds indexing, distribution of resource demands, and existence of unused code in the delivery. A code analysis command is issued by the AIT operator to check source code (static check), or executables (dynamic check), supplied in a science software delivery and provide performance statistics. Upon completion of the code checking tests, code analysis results from these checks are logged in a code analysis report that can be displayed on the console or produced in hardcopy format. This test is performed several times with different source code/shell scripts, to check for all the conditions listed above.

Test Configuration

Hardware - workstation, printer, local disk storage

Software - Static and Dynamic Code Checkers CSC

Data - Science Software Delivery package including: shell scripts, source code, executables

Test Support Required

N/A

Test Input

Science Software Code, input commands to code checking tools

Expected Test Outputs

Code analysis report to capture analysis results from the code check.

Success Criteria

For all science software code submitted to this test, all identified code errors will be reported along with standards checking results. These results will be generated and displayed (in hardcopy and softcopy format) to a console and/or printed in hardcopy. The compiled listing of results are verified for accuracy.

4.1.3.2 Test Case 2: Multiple File Type Data Visualization Test (TS008.002)

Test Case Description

This test case verifies the capability of the performance analysis and resource management tools to accept, read, and display data in various file types, specifically: ASCII, hexadecimal, octal,

decimal, binary, HDF or a user specified custom input data format. These data files may be dumped to a file or saved as softcopy.

Test Configuration

Hardware - workstation, graphics terminal, local disk storage

Software - Data visualization tools CSC

Data - Science Software delivery data files

Test Support Required

N/A

Test Input

Science Software input/output data files in ASCII, Hex, Octal, Decimal, HDF or a specified custom input data format.

Expected Test Outputs

Science Software input/output data file displays in the requested format

Success Criteria

For each data file submitted (in any of the input types specified), the same shall be read and/or displayed in the user requested format. These are verified by inspection.

4.1.3.3 Test Case 3: Data Visualization Plotting Capabilities Test (TS008.003)

Test Case Description

This test case demonstrates the ability to display and save data in; a two or three-dimensional plot, in an arbitrary two dimensional slice of a three-dimensional plot, or as a three-dimensional plot rotated about an arbitrary axis. Other functionality demonstrated, is the ability to display multiple views of same or different data in separate windows, to assign parameters and/or specify axis limits to each axis in a new or existing plot, to difference data and display as a two or three-dimensional plot, and to produce and play a "movie loop" of data in two or three-dimensional plot form. These plots may be displayed or saved as softcopy.

Test Configuration

Hardware - workstation, graphics terminal, local disk storage

Software - Data Visualization Tools CSC

Data - Science Software data files

Test Support Required

Windowing environment

Test Input

AIT related input/output data files, axis parameters, axis limitations. A series of tests are performed with various science software data files.

Expected Test Outputs

AIT related input/output data files in (1) plot display formats, and (2) multiple views of data output in separate windows.

Success Criteria

For each data file submitted to this test, a plot display is produced and saved in a (1) two or three-dimensional plot, (2) arbitrary slice of a two or three-dimensional plot and (3) three-dimensional plot rotated about an arbitrary axis. These displays will also be displayed in multiple views (same or different data) in separate windows. Parameters and/or axis limits will be accepted as input to new or existing plots. These plots are compared with the expected test output for verification.

4.1.3.4 Test Case 4: Data Visualization Imaging Capabilities Test (TS008.004)

Test Case Description

This test case demonstrates the ability to display and save data in; a two or three-dimensional images, in an arbitrary two dimensional slice of a three-dimensional image or as a three dimensional image rotated about an arbitrary axis. Other functionality demonstrated, is the ability to display multiple views of same or different data in separate windows, to specify the color table for an image display, to assign parameters and/or specify axis limits to each axis in a new or existing image, to difference data and display as a two or three-dimensional image and to produce and play a "movie loop" of data in two or three- dimensional image form. These data files may be printed or saved as softcopy.

Test Configuration

Hardware - workstation, graphics terminal, local disk storage

Software -Data Visualization Tools CSC

Data - Science Software Data files

Test Support Required

Windowing environment

Test Input

AI&T related input/output data files. A series of tests are performed with various science software data files.

Expected Test Outputs

AI&T related input/output data files in (1) image display formats, and (2) multiple views of data output in separate windows.

Success Criteria

For each data file submitted, an image display is produced in (1) two or three dimensional image, (2) arbitrary slice of a two or three dimensional plot and (3) three dimensional plot rotated about an arbitrary axis. These images will be: displayed in multiple views (same or different data) in separate windows, Accept color table specifications, parameters and/or axis limits as input to new or existing images. These image displays are compared with the expected test outputs for verification.

4.1.3.5 Test Case 5: Data Visualization Feature Enhancement Capability Test (TS008.005)

Test Case Description

This test case verifies the capability for feature enhancement of the performance analysis and resource management tools to include histogram equalization and edge enhancement.

Test Configuration

Hardware - workstation, graphics terminal, printer

Software - Data Visualization Tools CSC

Data - Science Software data files

Test Support Required

N/A

Test Input

AI&T performance metadata, AI&T resource metadata

Expected Test Outputs

Histograms (softcopy and hardcopy) with graph formats that have been altered for equalization and edge enhancement.

Success Criteria

For any performance data submitted to this test, various graphing format representations can be performed that alter histogram edge enhancement and equalization. These histograms can be presented on-line or hardcopy. The histograms are compared to expected test outputs for verification.

4.1.3.6 Test Case 6: Updating the PGE Database for AIT Test (TS008.006)

Test Case Description

This test case verifies the interface required to access resource usage information in the PGE database that is collected by the profiling tools (i.e., amount of disk space a PGE will consume, how long it will run, etc.) Access to these statistics is necessary to run the Science Software correctly and efficiently. Data stored in the PGE Database is accessed by Planning and Processing. This test verifies the interface between the PGE Database and the Operations staff for AI &T. The operations staff (via GUI) require the capability to:

- display a list of PGE database entries
- display a specific PGE database entry
- modify a specific PGE database entry
- add a new PGE database entry
- remove a specific PGE database entry
- cut, copy, paste a PGE database entry

Test Configuration

Hardware - Representative DAAC host (symmetrical multiprocessor or cluster of workstations, terminal)

Software - PGE Database Update GUI CSC

Data - PGE Database data

Test Support Required

Simulated PGE Database

Test Input

GUI inputs to: display a specific PGE or a list of PGE database entries, Add/Modify/Remove a specific PGE database entry, commands to copy/cut/paste to achieve the specified modifications .

Expected Test Outputs

In the case of an 'Add,', 'Display', or 'Modify' GUI input: Resource information regarding the specified PGE shall appear in a log or as an addition/change to the PGE database.

In the case of a 'Remove' GUI input: resource information regarding the specified PGE shall be removed.

Ability to cut, copy, and/or paste selected text to achieve the database modifications.

Success Criteria

For each addition/modification/removal/display GUI input made to the PGE database, the appropriate action shall be taken as requested. Database updates will be verified by inspection from a log or queries to the database.

4.1.4 QA Thread (TS009)

This thread demonstrates the Quality Assurance (QA) process performed in support of routine science production. Quality Assurance is the process to detect any anomalies of the generated product and ancillary data. Manual QA is performed by the operations staff during the I&T stage for initial algorithm assessment. It involves suspending the process of data production in order to access the quality of intermediate outputs. Automated Q/A is provided by a PGE executing a quality assurance algorithm. This thread will demonstrate the capability to perform manual QA, and automated QA and to update QA flags via a user interface.

4.1.4.1 Test Case 1: Automated (In-Line) QA of Standard Products Test (TS009.001)

Test Case Description

This test case verifies the capability to perform automated QA as part of the algorithm chain that normally follows the execution of the corresponding PGE. A QAE (Quality Assurance Executive) is the algorithm that is executed by a PGE and initiates the automated QA for each step of the QA process of a standard product. A PGE may exist which only performs automated quality assurance on a generated product (QAE) or the quality assurance algorithm may be one part of a PGE which generates a data product. The product metadata is updated with the quality assurance codes to indicate that in-line QA has completed successfully and thus maintains a QA history within the metadata. The updated metadata is stored to local storage as simulated Data Server access.

Test Configuration

Hardware- workstation, terminal, local disk storage

Software - Processing Management CSC

Data - Standard Data Products

Test Support Required

SDP Toolkit

Test Input

PGE, QAE, Standard Data product, metadata,

Expected Test Outputs

QA metadata attributes

Success Criteria

For each Standard Data product submitted to this test, QA metadata attributes (codes) will be added to the product metadata according to specifications set forth in the QAE. Q/A metadata meets established criteria.

4.1.4.2 Test Case 2: Manual Retrieval and Display of Generated Data Product for QA Test (TS009.002)

Test Case Description

This test case verifies the capability to manually retrieve and display a data product and its collected statistics. The Q/A operations position issues an "Initiate View" command to a simulated Data Server service that permits visual display of a generated data product and viewing of statistics collected on that product.

Test Configuration

Hardware- workstation, terminal, local storage media

Software - Q/A Monitor Interface

Data - Standard Data Products, ECS Scheduler/Planner

Test Support Required

SDP Toolkit, simulated Data Server services

Test Input

Initiate view command to a simulated data Server (for viewing statistics and Data products)

Expected Test Outputs

Hardcopy and Softcopy display of data products and it's associated statistics. (data products, algorithms, and calibration coefficient data, used to generate the data product to be evaluated, status information files and metadata)

Success Criteria

For all "Initiate view" commands issued to the simulated Data Server, visual display of the generated data product, statistics, and/or metadata (in Hardcopy and Softcopy format) shall be produced.

4.1.4.3 Test Case 3: Operating System, Utilities and Tools for QA Test (TS009.003)

Test Case Description

This test case verifies that the operating system for each UNIX platform in the Algorithm Quality Assurance HWCI (AQAHW) environment:

- is in compliance with POSIX.2 standards

- has Csh, Bourne, and Korn shells installed
- has the utilities: perl, emacs, gzip, tar, imake, make prof, gprof, nm, and vi installed by invocation and running the POSIX checker.

Test Configuration

Hardware - Representative DAAC Host (symmetrical multiprocessor or cluster of workstations)

Software - AQAHW CI

Data - shells: UNIX, csh, Bourne and Korn utilities: perl, emacs, gzip, tar, imake, make, prof, gprof, nm and vi

Test Support Required

POSIX standards checker

Test Input

UNIX, csh, Bourne and Korn shell scripts, source code

Expected Test Outputs

Active POSIX.2 compliant csh, Bourne, and Korn shells, functioning perl, emacs, gzip, tar, imake, make, prof, gprof, nm and vi utilities, status logs and messages

Success Criteria

For each representative DAAC QA hardware/software environment, evidence of POSIX.2 compliance shall be shown and a functioning csh , Bourne shell, Korn shell, perl, emacs, gzip, tar, imake, make, prof, gprof, nm and vi utilities will be proven through logs and messages generated by the POSIX checker and status messages generated by invoking each shell script and utility.

4.1.4.4 Test Case 4: Documentation for QA Test (TS009.004)

Test Case Description

This test case demonstrates that the Algorithm Quality Assurance HWCI (AQAHW) environment has either on-line display (man pages), or hardcopy print of documentation for each tool installed. These shall be displayed on console or in hardcopy print.

Test Configuration

Hardware - Representative DAAC host (symmetrical multiprocessor or cluster of workstations, terminal)

Software - On-line documentation drivers

Data - N/A

Test Support Required

N/A

Test Input

Calls to invoke all on-line documentation for AQAHW environment utilities/tools

Expected Test Outputs

On-line display or hardcopy print of documentation/man pages of each installed tool.

Success Criteria

For each tool installed in the AQAHW environment, the existence of associated on-line (man pages) and/or printed documentation will be displayed and verified by inspection.

4.1.5 Resource Management Thread (TS010)

Resource Management thread is responsible for allocating and managing the availability of resources (i.e., CPU, memory, and disk space) used for data processing activities such as the execution of PGEs (product generation executables) and the staging of data. Also included is the capability to determine what hardware resources are operational.

4.1.5.1 Test Case 1: Resource Management Information Test (TS010.001)

Test Case Description

This test verifies the ability to request information about health and availability of hardware resource by using Management Subsystem (MSS) provided Resource Management API (Application Program Interface). The resource management information is initialized at every Processing Subsystem start-up and modified when resource status is changed. Operations Staff has the capability of reporting this information.

Test Configuration

Hardware - Science Processor, Production Queue Control workstation

Software - Processing Queue Management, Resource Management, Processing Operation Interface

Data - N/A

Test Support Required

Test driver to simulate MSS with Resource Management API

Test Inputs

Processing Subsystem is initialized. When the system are in steady state, Operations command is entered to obtain the resource management information. This test is repeated with a resource failure.

Expected Test Outputs

Resource management information is displayed.

Success Criteria

Resource management information is displayed on terminal screen upon a request to view. The information must contain a list of resources and the following resource information: resource mode (on-line, off-line, available, or not available), and amount of memory available.

4.1.5.2 Test Case 2: Resource Allocation Test (TS010.002)

Test Case Description

This test demonstrates the ability to allocate resources required to execute the PGE or data staging. Upon receiving a manually entered data processing request (DPR), the resources are allocated as required to support PGE execution or data staging. Once they are allocated, the resource management information is updated.

Test Configuration

Hardware - Science Processor, Production Queue Control workstation, Planning Database Server host

Software - Processing Queue Management, Resource Management, Processing Operation Interface

Data - N/A

Test Support Required

Simulated PGE is available in local storage. Its information is populated in Planning database. Log file is used to monitor the incoming and outgoing messages of Processing CI.

Test Inputs

Data processing request is received and ready for resource availability check and allocation for PGE execution or data staging. A query is entered through the HMI to view the resource management information.

Expected Test Outputs

Resources are allocated; resource management information is displayed; resource utilization report is stored.

Success Criteria

Resource information is displayed on terminal screen upon a request to view. Resource management information must contain a list of resources and the following resource information: resource mode (on-line, off-line, available, or not available), and amount of memory available. Resource utilization report indicates resources have been allocated for the PGE execution and staging.

4.1.5.3 Test Case 3: Hardware Configuration Test (TS010.003)

Test Case Description

This test demonstrates the ability to modify the configuration of the Processing Subsystem hardware resources upon receiving a request entered through the HMI by Operations Staff. Resource management information is updated to reflect the modification.

Test Configuration

Hardware - Science Processor, Production Queue Control workstation, Planning Database Server host

Software - Processing Queue Management, Resource Management, Processing Operation Interface

Data - N/A

Test Support Required

Resource management information is initialized.

Test Inputs

Operations command is entered to modify the configuration of the hardware resource. Query is entered to view the information

Expected Test Outputs

Resource management information is updated and displayed

Success Criteria

Resource management information must contain a new list of resources and the following resource information: resource mode (on-line, off-line, available, or not available), and amount of memory available. It is updated to reflect the modification.

4.1.6 Process Management Thread (TS011)

This thread demonstrates the ability to execute data processing requests (DPR) for product generation. Responsibilities include: accepting DPR, queuing DPR, staging, destaging, executing PGE when processing resources such as memory, disk space, and CPU are available, and supporting operator interactions (i.e., reorder, cancel, suspend, resume, and view).

4.1.6.1 Test Case 1: Successful Acceptance of Data Processing Request Test (TS011.001)

Test Case Description

This test verifies the ability to accept and process DPR for PGE execution. Once DPR is manually entered, it is validated and queued according to its priority. Upon completion of validation and queue processing, Processing Status Message and Data Processing Request

Response are returned indicating the state of the processing job and the status of the request respectively. A log file is used to monitor the sending of these messages. Processing Queue Log records the new update which indicates DPR has been added to the queue.

Test Configuration

Hardware - Science Processor, Production Queue Control workstation

Software - Processing Management, Processing Queue Management, Processing Queue Envelope

Data - CERES L0, LIS L0 data granule, simulated PGE

Test Support Required

Resources are allocated. Simulated PGE and TRMM data is stored in the local storage. Log file is used to monitor the incoming and outgoing messages of the Processing CI.

Test Inputs

A series of DPRs with different priorities are entered manually.

Expected Test Outputs

Processing Queue Log is stored. Processing Status Message and Data Processing Request Response are sent and captured in the log file.

Success Criteria

Processing Queue Log must have the successful status of adding each DPR to the processing queue. DPRs are queued based on their priorities. Log file shows that Data Processing Request Response and Processing Status Message are sent to Planning Subsystem.

4.1.6.2 Test Case 2: Unsuccessful Acceptance of Data Processing Request Test (TS011.002)

Test Case Description

This test demonstrates the ability to respond to a failure in validating or queuing a DPR which is manually entered. Once the request is received, it is validated and is rejected if: it comes from an unauthorized source, resources (disk space, memory, CPU) for PGE execution, data staging or destaging are unavailable, PGE doesn't exist, or PGE has not been attained the level of validation for execution in operational environment. DPR is queued if it is successfully validated. Processing Log records the alert message when an error occurs in queuing. The alert message is then displayed on the terminal screen in Processing Queue Display upon an operations request to view. Processing Status Message and Data Processing Request Response are returned along with the reason of the rejection. These messages which return the state of the processing job and the status of DPR will be captured in a log file.

Test Configuration

Hardware - Science Processor, Production Queue Control workstation

Software - Processing Management, Processing Queue Management, Processing Queue Envelope, Resource Management

Data - CERES L0, LIS L0 data granule, simulated PGE

Test Support Required

Simulated resource profile. Log file is used to monitor the incoming and outgoing messages of Processing CI

Test Inputs

DPRs are entered with different conditions: unauthorized source, unavailable resource, and PGE error. Operations command is entered to view the Processing Queue Display.

Expected Test Outputs

Data Processing Request Response messages are sent and captured in the log file; Processing Queue Display.

Success Criteria

Data Processing Request Response and Processing Status Message are sent to the requester along with the reason for rejection and the rejected status of DPR. Log file shows that these messages are sent to Planning Subsystem. If failure occurs in queuing, Processing Queue Display is updated with an alert message. Processing Queue Log records the error.

4.1.6.3 Test Case 3: Data Staging Test (TS011.003)

Test Case Description

This test demonstrates the ability to request data staging of input data needed for product generation. If input data is available on another remote processing resource, the data can be obtained from that resource and stored on processing local storage. Data staging from Data Server is needed if the input data has not been staged or generated. An Access Request message, which specifies the type of input data needed (i.e., ECS Data Product, ancillary data, Special Data Product, calibration, PGE), is sent to initiate data staging. Access Request Response replies acknowledging the staging status. If there is a failure in staging, i.e., a bad Access Request Response is returned, a Completion Notification is immediately sent to requester of DPR. Processing Queue Log records the status of data staging. Complete interface with Data Server and Planning are not tested; instead, only message sending and receiving are verified.

Test Configuration

Hardware - Science Processor, Production Queue Control workstation

Software - Processing Queue Management, Processing Queue Envelope

Data - CERES L0, LIS L0 data granule, simulated PGE

Test Support Required

Disk space for staging is available. Test driver to generate staging replies from Data Server. Log file is used to monitor the incoming and outgoing messages of Processing CI.

Test Inputs

A series of DPRs with different required input data such as ECS Data Product, ancillary data, Special Data Product, calibration, PGE are entered manually.

Expected Test Outputs

Processing Queue Log is stored; PGE Event State is updated. Log file captures messages sent/received to/from Data Server and Planning.

Success Criteria

Processing Log captures the successful or unsuccessful status of data staging. Log file indicates that input data is copied to local storage if another processing resource has the required input data or Access Request message is sent if staging is needed. In return, Access Request Response responds with staging status. If staging is successful, PGE Event State is updated to "executing." Otherwise, PGE Event State is "staging failed" and log file must shows a sending of Completion Notification to Planning indicating staging has failed.

4.1.6.4 Test Case 4: Operator Interaction - View Test (TS011.004)

Test Case Description

This test demonstrates the ability to provide the Operations Staff the capability to view the Processing Queue and the associated information and status of Data Processing Requests through the HMI (Human Machine Interface). Data such as ECS Data Product, ancillary, calibration coefficient, algorithm and metadata are also viewed.

Test Configuration

Hardware - Science Processor, Production Queue Control workstation

Software - Processing Operation Interface, Processing Queue Management

Data - ECS data product, ancillary, calibration coefficient, algorithm, metadata

Test Support Required

Simulated data is locally stored. Processing has been performed so that information on processing queue and status of DPR can be obtained. Log file is used to capture messages received to view these information.

Test Inputs

A series of requests are entered through the HMI to view different information.

Expected Test Outputs

Visual display of the requested data or information; Processing Queue View displays the information and status of DPRs.

Success Criteria

Required information is successfully displayed on the terminal screen. Status of DPR must contain its current state and queue position.

4.1.6.5 Test Case 5: Operator Interaction - Cancel, Suspend, Resume, or Modify Data Processing Request Test (TS011.005)

Test Case Description

This test demonstrates the ability to provide the operator the capability to cancel/suspend/resume/modify the processing of a DPR through the HMI. As the processing state of the DPR is updated according to the operator's request, Processing Queue Display, which can be viewed, is also updated. The Processing Queue Log records the change.

Test Configuration

Hardware - Science Processor, Production Queue Control workstation

Software - Processing Operation Interface, Processing Queue Management, Processing Queue Envelope, Resource Management

Data - CERES L0, LIS L0 data granule, simulated PGE

Test Support Required

Existing Data Processing Requests on the processing queue. Test driver to generate Data Server messages. Log file is used to capture incoming and outgoing messages.

Test Inputs

To compare the updates, requests are entered to view the state of a DPR through the Processing Queue Display before and after every operations command is used to cancel, suspend, resume, or modify the DPR.

Expected Test Outputs

Processing Queue Display is updated and displayed on the terminal screen. New Processing Queue Log is stored.

Success Criteria

The processing state of the DPR is updated in Processing Queue Display shown on the terminal screen to reflect the Operations Staff's requests. Processing Queue Log has an a new entry added to capture each change.

Cancel - Access Request message is sent to terminate data staging if in progress. The DPR is removed from the processing queue. Status information is displayed to the terminal screen. Log file indicates a Completion Notification has been sent to Planning CI. Resources are deallocated.

Suspend - If data staging or destaging is in progress, the process is allowed to continue until the task is completed. PGE execution is suspended if PGE is executing. Resources are not deallocated.

Resume - Processing resumes where it was before suspension. No resource re-allocation is needed.

Modify - Modification is allowed for queued or suspended DPR only. If priority is modified, the request is re-validated and re-queued for execution.

4.1.6.6 Test Case 6: Operator Interaction - Terminate Data Staging/Destaging Test (TS011.006)

Test Case Description

This test demonstrates the ability to provide the Operations Staff the capability to terminate data staging or data destaging through the HMI. Upon a receipt of Operations Command, an Access Request message is sent to initiate the termination.

Test Configuration

Hardware - Science Processor, Production Queue Control workstation

Software - Processing Management, Processing Queue Management, Processing Queue Envelope, Resource Management, Processing Operation Interface

Data - CERES L0, LIS L0 data granule, simulated PGE

Test Support Required

Log file is used to monitor the incoming and outgoing messages. Existing processing request at staging state. Simulated Data Server to receive termination request and respond acknowledgment.

Test Inputs

A request to terminate data staging/destaging is entered through the HMI.

Expected Test Outputs

Response is displayed on terminal screen. New Processing Queue Log is stored.

Success Criteria

Access Request Message is sent to initiate the termination request. A successful response is displayed on terminal screen and Processing Log indicates staging/destaging is terminated.

4.1.6.7 Test Case 7: Initiation of PGE Execution Test (TS011.007)

Test Case Description

This test demonstrates the ability to initiate the PGE execution based on the resource information associated with the PGE and the priority information associated with the data processing request. When the data processing is first received, it is prioritized and placed on the queue waiting for execution. When the resource requirements, as indicated in the PGE have been met and the input data is available on local storage, execution of the PGE is initiated. Processing Queue Log captures the transitioning state to "executing" of the PGE.

Test Configuration

Hardware - Science Processor, Production Queue Control workstation

Software - Processing Queue Management, Processing Queue Envelope, Resource Management, Processing Operation Interface

Data - CERES L0, LIS L0 data granule, simulated PGE

Test Support Required

Resources for execution and input data are available

Test Inputs

Data Processing Requests with different priorities are entered to be queued.

Expected Test Outputs

PGE executions begin for all the requests. Processing Queue Log is stored.

Success Criteria

PGE execution is initiated based on the priority and the availability of input data and resources. Once the execution is initiated, DPR state is updated to “executing.” Processing Queue Log records the updates of the DPRs.

4.1.6.8 Test Case 8: Data Destaging Test (TS011.008)

Test Case Description

This test demonstrates the ability to perform output data destaging to Data Server. The output data is not deleted until it is successfully copied to the Data Server resources. When the

destaging is complete, an Access Request Response from Data Server is sent to notify Processing CI and a Completion Notification of the data processing request is sent to Planning CI to notify of the data destaging status. If there is a failure in destaging, i.e., a bad Access Request Response is returned, Processing Queue View is updated with an alert message and Processing Queue Log records the error. Complete interface with Planning CI is not tested; instead, only the outgoing messages are verified.

Test Configuration

Hardware - Science Processor, Production Queue Control workstation

Software - Processing Queue Management, Processing Queue Envelope, Resource Management

Data - ECS L1-L4 data product, simulated PGE

Test Support Required

Product has been generated after PGE execution completes. Log file to capture incoming and outgoing messages. Test Driver to generate Access Request Response messages.

Test Inputs

The test is repeated to produce two results: successful destaging and unsuccessful destaging. For the unsuccessful result, Data Server test driver is used to generate a bad Access Request Response. A query is entered to view the Processing Queue Display.

Test Outputs

Generated data product is stored in the local storage. Processing Queue Display; Processing Queue Log is updated and stored.

Success Criteria

The status of destaging is determined through Access Request Response Message received from Data Server. Completion Notification is sent to the requester of DPR to inform of the DPR status. Log file captures these messages. Processing Queue View is updated to display "PGE Completed" for successful destaging, and "Destaging Failed" for unsuccessful destaging.

4.1.7 Simple Product Generation Build (BS003)

This build provides the functionality to perform simultaneous processing for individual data processing requests. Requests are accepted, resources are allocated, and data processing is executed when ancillary and L0 data is ingested, preprocessed and available. Once the processing completes, QA will then be performed on the generated product. The build includes the Ancillary Ingest 1 Thread, the Ancillary Preprocessing Thread, the AIT Thread, the Resource Management Thread, the Process Management Thread, and the QA Thread. It also includes from IR1 the Algorithm I&T Environment Build which will be regression tested to ensure successful algorithm integration and testing which supports the science processing in the operational DAAC.

4.1.7.1 Test Case 1: Processing System Initialization and Shutdown Test (BS003.001)

Test Case Description

This test demonstrates the ability to initialize and shutdown the Processing system in an orderly fashion. Using a system account with appropriate privileges, commands are entered to initialize the Planning system. The system status is monitored to determine the status of the initialization. System initialization is timed. Once the system is successfully initialized, commands are entered for orderly shutdown. Again, the system is monitored to determine shutdown status. Shutdown is timed.

Test Configuration

Hardware - Science Processor, Production Queue Control workstation

Software - Processing Management, Processing Queue Management, Processing Queue Envelope, Resource Management, Processing Operation Interface

Data - N/A

Test Support Required

N/A

Test Inputs

A series of commands are entered for initialization, shutdown and system monitoring.

Test Expected Outputs

System monitoring to confirm the state of the Planning system. Timing measurements are collected for initialization and shutdown.

Success Criteria

The system commands are accepted and successful initialization and shutdown of the system is confirmed by system monitoring. System initialization and shutdown are completed within determined time requirements.

4.1.7.2 Test Case 2: Processing System Recovery Test (BS003.002)

Test Case Description

This test demonstrates the ability to recover from a fault during initialize and shutdown of the ingest system. Using a system account with appropriate privileges, commands are entered to initialize the ingest system. The system status is monitored to determine the status of initialization. Before initialization is complete a system fault is simulated. The system status is monitored to verify successful recovery from the fault. Once the system is successfully initialized, commands are entered for orderly system shutdown. Again, a system fault is simulated. System status is monitored to verify successful shutdown of the system.

Test Configuration

Hardware - Science Processor, Production Queue Control workstation

Software - Processing Management, Processing Queue Management, Processing Queue Envelope, Resource Management, Processing Operation Interface

Data - N/A

Test Inputs

A series of commands are entered for initialization, shutdown and system monitoring. System faults of hardware components are simulated.

Test Outputs

System monitoring to confirm the state of the system.

Success Criteria

The system commands are accepted and successful initialization and shutdown of the system is confirmed by system monitoring. System status monitoring correctly displays the system configuration including detection of simulated system faults.

4.1.7.3 Test Case 3: Data Processing Test (BS003.003)

Test Case Description

This test verifies the ability to process the data processing request and to provide its status to the requester. The test begins with an arrival of Data Processing Request. Data Processing Request can be used to generate ECS data product or to perform automated QA. If validation and queuing are successful, a response will be sent to the requester indicating the status of both tasks. When input data is available on the local storage, PGE execution begins. Resource utilization is monitored during the processing. A Completion Notification will be sent to the requester to notify the status of the processing when execution has completed. Processing Queue Log accounts all processing activities.

Test Configuration

Hardware - Science Processor, Production Queue Control workstation

Software - Processing Management, Processing Queue Management, Processing Queue Envelope, Resource Management, Processing Operation Interface, SDP Toolkit

Data - CERES L0, LIS L0 data granule, simulated PGE

Test Support Required

Test driver to generate CSMS and DPR message. TRMM data and PGE are locally stored. Log file is used to monitor the incoming and outgoing messages of the CIs.

Test Inputs

Data processing requests are entered for data generation and data product QA. During PGE execution, an Operations command is entered to view the resource utilization information. It can be requested based on time span, resource classification, or operational role. A request is entered to view the Processing Queue Display to monitor the state of DPR throughout its processing.

Expected Test Outputs

Processing Queue Display, Resource Utilization Report are displayed. Processing Queue Log, Process Control File are stored. Completion Notification is sent to Planning CI.

Success Criteria

Processing Queue Display shows the state of the DPR as it's changed. Processing Log accounts all activities occurred during data processing. Resource Utilization Report provides memory usage data, space usage data, and CPU usage data of resources used during a PGE execution. Process Control File is used by Toolkit to obtain information about the locations of the input used by a PGE and output data created by the execution of a PGE.

4.1.7.4 Test Case 4: Status Information File Test (BS003.004)

Test Case Description

This test verifies the ability to support SDP Toolkit in creating a Status Information File to capture SDP Toolkit errors and user-specified science software errors during the execution of a PGE. This error information can be viewed remotely and is not provided for review automatically unless requested.

Test Configuration

Hardware - Science Processor, Production Queue Control workstation

Software - Processing Management, Processing Queue Management, Processing Queue Envelope, Resource Management, Processing Operation Interface, SDP Toolkit

Data - CERES L0, LIS L0 data granule, simulated PGE

Test Support Required

Resources are allocated. PGE and TRMM data are stored in the local storage.

Test Inputs

This test is repeated for several SDP Toolkit and science software error conditions. A request is entered to review the Status Information File at the end of each test.

Expected Test Outputs

Status Information Files is displayed.

Success Criteria

Status Information Files provide detailed error information occurred during the execution of PGE.

4.1.7.5 Test Case 5: Recovery of PGE Execution Failure Test (BS003.005)

Test Case Description

This test demonstrates the ability to recover from the failure of PGE execution. Processing Queue Display is updated with an alert message and Processing Queue Log records the error. The failure may be caused by processing resource failure (external) or by the science algorithm itself (internal). In case of the external error, similar resource is allocated and PGE execution is re-initiated without having to ask for input data. If resource cannot be allocated successfully, the DPR is then re-prioritized for execution at a later time. For internal error, PGE can be re-executed, if possible, otherwise exits gracefully.

Test Configuration

Hardware - Science Processor, Production Queue Control workstation

Software - Processing Management, Processing Queue Management, Processing Queue Envelope, Resource Management, Processing Operation Interface

Data - CERES L0, LIS L0 data granule, simulated PGE

Test Support Required

PGE is executing

Test Inputs

For external error condition, processing resource failure is induced; for internal error condition, science algorithm is aborted during the PGE execution. A request is entered to view Processing Queue Display.

Expected Test Outputs

Processing Queue Display; Processing Queue Log and Resource Management Information are updated and stored.

Success Criteria

Processing Queue Display is updated with an alert message when a fault occurs in PGE execution. Processing Queue Log accounts all activities. Resource information is updated to show resource has become non-operational if the error is external. When resource becomes available, PGE execution is re-initiated without the re-generation of the input data. If the error is internal, the processing of the DPR exits gracefully sending the response to its requester.

4.1.7.6 Test Case 6: Processing System Fault Test (BS003.006)

Test Case Description

This test demonstrates the ability to perform fault detection and fault isolation. An initialized Processing system is monitored for current system status. The system configuration is modified to simulate system faults. The system status is monitored to determine if the faults in Processing subsystem are properly detected and reported to MSS. Processing is instigated. The system status is monitored after fault detection to determine that the system is operating under a modified configuration. Interface with MSS is not fully tested; instead, only one message to send fault data to MSS is monitored.

Test Configuration

Hardware - Science Processor, Production Queue Control workstation

Software - Processing Management, Processing Queue Management, Processing Queue Envelope, Resource Management, Processing Operation Interface

Data - CERES L0, LIS L0 data granule, PGE

Test Support Required

Processing system is in steady state before fault is induced.

Test Inputs

Commands are entered for system status monitoring. System faults are simulated. Processing requests are submitted.

Test Outputs

System monitoring to confirm the state of the system.

Success Criteria

System status is successfully displayed before and after simulated system faults. The system correctly detects and displays system faults. The system successfully performs data processing after system faults occur.

4.1.7.7 Test Case 7: Processing System Maintenance and Upgrade Test (BS003.007)

Test Case Description

This test demonstrates the ability of Processing System to operate while in support of maintenance and upgrading activities. An initialized system is monitored for current system status. The system configuration is modified (i.e., some hardware components are taken off-line, or being added). Processing is instigated with the system in a degraded/upgraded mode. The system status is monitored to determine that it is operating under a modified configuration.

Test Configuration

Hardware - Science Processor, Production Queue Control workstation

Software - Processing Management, Processing Queue Management, Processing Queue Envelope, Resource Management, Processing Operation Interface

Data - CERES L0, LIS L0 data granule, PGE

Test Support Required

Processing system is in steady state before becoming degraded/upgraded.

Test Inputs

Commands are entered for system status monitoring. Commands are entered to configure the system to support maintenance activities. Hardware components are taken off-line, or being added putting the system into a degraded or upgraded operational mode. Operations requests for data processing are submitted.

Test Outputs

System monitoring to confirm the state of the system.

Success Criteria

Commands are successfully entered for system monitoring and system configuration in support of maintenance activities. Data processing is successfully completed with the system in degraded/upgraded mode.

4.1.7.8 Test Case 8: Processing Performance Test (BS003.008)

Test Case Description

This test demonstrates the ability of Processing System to perform within the timing and storage requirements as specified in the Level 4 requirements and Table 1 in Appendix E of DID 304. Specifically, this test will verify that Science Processing hardware:

- supports a total processing requirement as specified in Table 1
- .• supports a data volume (gigabytes/day) as specified in Table 1
- generates L1-L4 standard products within determined period of time

Test Configuration

Hardware - Science Processor, Production Queue Control workstation

Software - Processing Management, Processing Queue Management, Processing Queue Envelope, Resource Management, Processing Operation Interface

Data - CERES L0, LIS L0 data granule, PGEs

Test Support Required

XRunner is used for automated testing and performance timing.

Test Inputs

Entries and executions of data processing requests are repeatedly tested to verify the performance requirement.

Test Outputs

Performance statistics

Success Criteria

Performance statistics show that performance timing and storage requirements as specified in Appendix E - Table 1 are met.

4.2 Product Generation Tests

The following subsections include the threads and builds identified to support testing of Product Generation. Product Generation testing includes the following threads and builds:

- Production Planning Thread
- Production Management Thread
- Product Generation Build

4.2.1 Production Planning Thread (TS012)

This thread is responsible for demonstrating the ability of the Operations Staff to generate, modify, and activate a production plan. The production plan generation is based on standard production requests, a default strategy, and DASs. Other responsibilities include: generating local DAS to notify Data Server of the data availability schedule, and providing GUI interface to access Planning DBMS tables that contain data and rules that the plan generation is based on.

4.2.1.1 Test Case 1: Candidate Plan Generation For Standard Production Request Test (TS012.001)

Test Case Description

This test verifies the capability to create a candidate plan based on a Standard Production Request, a default strategy, and DASs. Production plan generation is also based on the predicted resource availability information received from site resource scheduling CSMS. The request is entered through the HMI identifying the PGEs to be used for product generation. Once the plan is created, an electronic copy of the plan and its corresponding metadata is sent to the local Data Server. A copy of the database environment is also maintained for plan analysis in the future. Plan Creation Request Response is displayed to terminal screen notifying the status of the request. The complete interface with Data Server is not tested; instead, only the outgoing messages to Data Server are monitored.

Test Configuration

Hardware - Production Planner workstation, Planning Database Server host

Software - Production Planning, Production Management DBMS

Data - simulated PGE

Test Support Required

Existing standard production requests, PGE information, data availability schedules (DASs) and production rules in Planning database. Simulated PGE and DAS. Test driver to generate CSMS messages. Log file is used to monitor the messages sent to Data Server.

Test Inputs

A series of Plan Creation Requests are manually entered through the HMI with different production requests and DASs.

Expected Test Outputs

Responses are displayed to terminal screen.

Success Criteria

Responses are displayed to the terminal screen indicating the request status. If the new candidate plan is successfully created it must contain the PGE identifier, inputs, its availability status, outputs, expected start and end time, priority, and required resource. Log file shows that a copy of the generated plan and its metadata are sent to Data Server. Database information which the plan is based on is stored and can be accessed.

4.2.1.2 Test Case 2: Entry of Production Plan Activation Request Test (TS012.002)

Test Case Description

This test verifies the ability to activate the designated candidate plan upon a receipt of Plan Activation Request entered through the HMI. The request identifies the candidate plan to be activated. The request is rejected if the plan identifier does not match any valid candidate plan. Plan Activation message is sent to Processing resource to inform that a new plan has been activated. A response will be sent to the display showing the status of the Plan Activation Request. Activated plan and corresponding metadata are sent to Data Server. DAS for local site is then created based on the plan. Complete interfaces with Processing and Data Server are not tested. Instead, only the outgoing messages in these interfaces are monitored.

Test Configuration

Hardware - Production Planner workstation, Planning Database Server host

Software - Production Planning, Production Management, Production Management DBMS

Data - simulated PGE

Test Support Required

Existing candidate plan. Log file is used to capture the outgoing messages of Planning CI to Data Server and Processing.

Test Inputs

Valid and invalid "Plan Activation" requests are entered through the HMI.

Expected Test Outputs

Responses are displayed to terminal screen. Activated plan, DAS and metadata are sent to local storage (Data Server).

Success Criteria

Responses are displayed to terminal screen indicating a successful or unsuccessful acceptance of the request. Log file shows that a Plan Activation message has been sent to Processing and activated plan copy, DAS and its corresponding metadata are sent to Data Server. They are not sent if the request is invalid.

4.2.1.3 Test Case 3: Planning Database Management Test (TS012.003)

Test Case Description

This test verifies the ability to manage the databases that maintain the production rules and PGE information. Planning CI provides the capabilities for Operations Staff to browse the list of PGEs and update (i.e., entry, modify, delete) PGE information and production rule in the Planning databases. The request to access the database is entered through the HMI.

Test Configuration

Hardware - Production Planner workstation, Planning Database Server host

Software - Production Planning, Production Management DBMS

Data - simulated PGE

Test Support Required

PGE information and production rule are maintained in the Planning database

Test Inputs

Using HMI to browse and update the database

Expected Test Outputs

PGE information or production rule is updated and displayed on terminal screen.

Success Criteria

The information in the Planning database is displayed for viewing. If the information has been modified or deleted, the result should reflect the updates.

4.2.1.4 Test Case 4: Plan Modification With New Version Database Test (TS012.004)

Test Case Description

This test verifies the ability to modify a plan indirectly by creating a new version of a database which is used to generate a production plan. The capability to modify a production plan directly, by editing an already generated plan, is not allowed because modification may cause unwanted side effects. Therefore, plan modification is done in an indirect fashion by creating a new candidate plan using modified databases. The databases include all types of production requests, DASs, resource management, Production Rules, and PGE information.

Test Configuration

Hardware - Production Planner workstation, Planning Database Server host

Software - Production Planning, Production Management, Production Management DBMS

Data - simulated PGE

Test Support Required

Existing standard processing requests, PGE information, data availability schedules (DASs) and production rules in Planning database. A candidate plan is already created based on the old version of the database.

Test Inputs

Standard production request or production rules which a plan is based on is updated and a request of new plan creation is entered through the HMI.

Expected Test Outputs

Response is displayed to terminal screen; a new candidate plan is generated.

Success Criteria

Successful response to terminal screen (Operations Staff) indicating the status of the new candidate plan. Old candidate plan and new candidate plan are compared. The new one must reflect the changed information in the Planning database.

4.2.2 Production Management Thread (TS013)

This thread demonstrates the implementation of a production plan. Responsibilities include: automatic initiated processing of a processing request based on a production plan and the receipt of subscription notice of data arrival and implementation of Standard Data Processing Requests which are derived from standard production requests in an active plan. The Operation Staff is provided the visibility of the production plan and the status of the Data Processing Request (DPR).

4.2.2.1 Test Case 1: Successful Acceptance of Standard Production Request/ Production Rule Test (TS013.001)

Test Case Description

This test demonstrates the capability to accept a valid Standard Production Request or Production Rule which is entered in the same format through the HMI by Operations Staff. For the Standard Production Request, if successfully validated and data subscription has not been made, the requester is alerted to manually subscribe for input data at the appropriate Data Server and the Ingest Subsystem. The production request/Production Rule will be stored in the Planning database located in Planning Database Server host and become usable in the next plan generation. The response is displayed to the screen (Operations Staff) indicating successful acceptance of the request. Complete interface with Data Server and Ingest Subsystems are not tested; instead, only the outgoing subscription messages are monitored.

Test Configuration

Hardware - Production Planner workstation, Planning Database Server host

Software - Production Management, Production Management DBMS

Data - CERES L0, LIS L0 data granule, simulated PGE

Test Support Required

Planning database is populated with PGE information. Log file is used to capture incoming and outgoing messages of Planning CI

Test Input

Production Requests are entered through the HMI with inputs such as time and PGE information. Subscribe for the input data arrival notice when the alert appears on the screen. Query is entered to browse information in the database.

Expected Test Outputs

Response is displayed to terminal screen; database is updated with a new production request.

Success Criteria

A response is returned to the terminal screen indicating the acceptance of the production request. The production request is added to the Planning database. Message is sent to terminal screen

reminding that a subscription is needed. Log file shows subscription message is sent if subscription request is entered

4.2.2.2 Test Case 2: Rejection of Standard Production Request Test (TS013.002)

Test Case Description

This test demonstrates the capability to validate and reject an invalid Standard production request entered through the HMI. It is rejected if invalid product or unauthorized requester is identified. The response is returned to the requester with reason of the rejection.

Test Configuration

Hardware - Production Planner workstation, Planning Database Server host

Software - Production Management, Production Management DBMS

Data - N/A

Test Support Required

N/A

Test Inputs

Invalid production requests are entered through the HMI with invalid product, or unauthorized requester.

Expected Test Outputs

Response is displayed to terminal screen indicating the request is rejected.

Success Criteria

Response displayed to the terminal screen indicating the request is rejected along with the reason of the rejection.

4.2.2.3 Test Case 3: Modification of Production Request Test (TS013.003)

Test Case Description

This test verifies the ability to modify a production request upon a receipt to modify entered through the HMI by Operations staff. If the Production Request is not found a rejection will be sent to the requester. If there are associated Data Processing Requests which are no longer needed because of the modification or have not been completely processed, Cancellation of Data Processing Requests will be sent to Processing to cancel them. A response is returned to the terminal screen indicating the status of the modification.

Test Configuration

Hardware - Production Planner workstation, Planning Database Server host

Software - Production Planning, Production Management, Production Management DBMS

Data - simulated PGE

Test Support Required

Existing production requests and corresponding data processing requests. Log file is used to capture incoming and outgoing messages of Planning CI

Test Inputs

A series of modification requests are entered to modify that production request through the HMI. Modifications are requested for: an unknown production request, a production request with no associated data processing requests, a production request with associated data processing requests which have been submitted to Processing.

Expected Test Outputs

A response for each modification request is displayed to the Operations Staff.

Success Criteria

Responses are returned to terminal screen informing the status of the modification requests. The request is rejected if the production request cannot be found. The plan status is not updated. Otherwise, response is returned with successful status. The update of the plan indicates the modification. If its data processing requests had already been submitted to Processing, the log file should show that Cancellation of Data Processing Requests are sent to cancel them.

4.2.2.4 Test Case 4: Cancellation of Production Request Test (TS013.004)

Test Case Description

This test verifies the ability to cancel a production request upon a receipt to cancel from Operations Staff. A rejection is returned if the production request is not found. If the production request exists, the cancellation requests are sent to Processing to cancel the associated Data Processing Requests. Upon completion of these PGE cancellations, Production Request Cancellation Response is sent to Operations Staff indicating the status of the cancellation. Operations staff is also informed to manually delete the subscription for input data.

Test Configuration

Hardware - Production Planner workstation, Planning Database Server host

Software - Production Management, Production Management DBMS

Data - N/A

Test Support Required

Existing production requests with corresponding data processing requests.

Test Inputs

Valid and invalid cancellation requests are entered through HMI.

Expected Test Outputs

For valid request, a production request is canceled. A response for the cancellation request is displayed to the terminal screen.

Success Criteria

For valid request, the update of the plan indicates the cancellation. Successful response and an alert message sent to terminal screen to delete the subscription of input data for this production request. If the request is invalid, a bad response is displayed.

4.2.2.5 Test Case 5: Status of Production Requests Test (TS013.005)

Test Case Description

This test verifies the ability to maintain and provide the current processing status of all production requests. The status can be viewed upon a request by Operations Staff through the HMI. Production Request Status reports are created to provide production request information based on the report generation parameters and the time period specified.

Test Configuration

Hardware - Production Planner workstation, Planning Database Server host

Software - Production Management, Production Management DBMS

Data - N/A

Test Support Required

Production requests are maintained in the planning database. Test driver to generate Processing Status Message and Completion Notification of Processing CI. These messages are used to obtain processing status of the data processing requests.

Test Inputs

A query is entered to view the status of production requests.

Expected Test Outputs

A status report of the production requests is displayed on the terminal screen.

Success Criteria

The status reports should indicate the status of the associated data processing requests derived from the production request. The production request is considered completed when all of its data processing requests are completely processed.

4.2.2.6 Test Case 6: Status of Data Processing Requests Test (TS013.006)

Test Case Description

This test verifies the ability to maintain and provide the current processing status of all data processing requests generated. Data Processing Request Status reports are created to provide data processing request information based on the report generation parameters and the time period specified. It can be viewed upon a request through the HMI by Operations Staff.

Test Configuration

Hardware - Production Planner workstation, Planning Database Server host

Software - Production Management, Production Management DBMS

Data - N/A

Test Support Required

Existing active plan and corresponding data processing requests. Simulated Processing CI messages: Completion Notifications, Processing Status Message, and Data Processing Request Responses.

Test Inputs

After the processing messages have been received, a query is entered through the HMI by Operations Staff for information and status of these data processing requests.

Expected Test Outputs

Information and status of data processing requests are displayed on terminal screen

Success Criteria

The information and status of the data processing requests should show the following status: pending for processing, sent to processing, queued, data staging, executing, data destaging, and complete.

4.2.2.7 Test Case 7: Status of Candidate and Active Plans Test (TS013.007)

Test Case Description

This test verifies the ability to maintain the information and status of the candidate and active plans. The information can be viewed upon a request by Operations Staff through the HMI. In the case of monitoring the active plan, its status is dynamically updated.

Test Configuration

Hardware - Production Planner workstation, Planning Database Server host

Software - Production Planning, Production Management, Production Management DBMS

Data - N/A

Test Support Required

Existing candidate and active plans with corresponding data processing requests in different states (i.e., pending for processing, sent to processing, queued, data staging, executing, data destaging, and complete).

Test Inputs

A series of queries are entered. Requests are made to view the information and status of: an unknown candidate plan, a known candidate plan, and active plan.

Expected Test Outputs

Information and status of the plans are displayed on terminal screen

Success Criteria

If identifier of the candidate plan is not found, the Operation Staff is notified with a bad response. Otherwise, the information and status of the plans should indicate which plans are candidate, which is active in the applicable time frame. The status should indicate the states (for processing, sent to processing, queued, data staging, executing, data destaging, and complete) of all PGEs. The display is static for candidate plan and dynamic for active plan.

4.2.2.8 Test Case 8: Resource Utilization Report Generation Test (TS013.008)

Test Case Description

This test demonstrates the capability to generate a resource utilization report that contains information on resource availability, resource downtimes, and CPU utilization upon a request entered through the HMI. The information on the health and availability of hardware resources is obtained from CSMS.

Test Configuration

Hardware - Production Planner workstation

Software - Production Management

Data - N/A

Test Support Required

Test driver to generate CSMS messages

Test Input

Requests are entered through HMI to obtain resource utilization reports

Expected Test Outputs

Resource Utilization Reports are displayed on the terminal screen

Success Criteria

Resource Utilization Reports show the utilization and availability of resources. Resource Utilization Reports must have information about CPU, memory and disk space usage.

4.2.2.9 Test Case 9: Processing Log Report Test (TS013.009)

Test Case Description

This test demonstrates the ability to generate a processing log report upon a request (or periodically) to provide the status of the production plans and their activities. Processing Log also records hardware and software errors. The query is entered through the HMI. The valid specified log time period is any time from the past till present.

Test Configuration

Hardware - Production Planner workstation, Planning Database Server host

Software - Production Management

Data - N/A

Test Support Required

N/A

Test Inputs

Requests to view Processing Log can be entered through the HMI

Test Outputs

Processing Log printouts

Success Criteria

Processing Log reflects the planning activities and their status during a data production process.

4.2.2.10 Test Case 10: Miscellaneous Status Reports Test (TS013.010)

Test Case Description

This test verifies the ability to generate a workload status report and processing turnaround time report upon a request entered by Operations Staff.

Test Configuration

Hardware - Production Planner workstation, Planning Database Server host, printer

Software - Production Management, Production Management DBMS

Data - N/A

Test Support Required

Normal processes of product generation have been performed so that workload, and processing turnaround time can be obtained

Test Inputs

A request to generate status reports of workload and processing turnaround time are entered through the HMI

Expected Test Outputs

Printouts or visual displays of the reports

Success Criteria

Reports show the following information:

Workload Status Report - number of production requests being processed, number of plans created and implemented.

Processing Turnaround Time Report - time taken to close out each data processing request sent for processing.

4.2.2.11 Test Case 11: Data Availability Schedule (DAS) Information Test (TS013.011)

Test Description

This test demonstrates the capability to access DAS based on the information provided in subscription notice. DAS contains information about the predicted time of the availability of data. When DAS has arrived at local data server from remote data server or external resources such as SDPF and ADCs, a subscription notice from Data Server provides information on the location of DAS, also called Universal Reference (UR) and the site identifier. Operations staff is notified of the arrival of DAS to create a plan. DAS is then available for viewing.

Test Configuration

Hardware - Production Planner workstation, Planning Database Server host

Software - Production Management, Production Management DBMS

Data - CERES L0, LIS L0 data granule, simulated PGE

Test Support Required

Simulated subscription notice and DAS from Data Server. Log files is used to monitor the incoming and outgoing messages.

Test Input

A receipt of subscription notice. After the corresponding DAS has been obtained, a request is entered to view the current DAS

Expected Test Outputs

Notification of DAS arrival is sent to terminal screen. DAS is obtained.

Success Criteria

Log file shows the necessary messages to obtain DAS. DAS information is displayed on the terminal screen.

4.2.3 Production Generation Build (BS004)

This build verifies the ability to generate a product based on a plan. The plan includes processing of several simultaneous production requests. The following threads and build make up the Product Generation Build: the Production Planning Thread, the Production Management Thread and the Simple Product Generation Build where the associated PGEs to the individual requests are executed to generate Standard products.

4.2.3.1 Test Case 1: Planning System Initialization and Shutdown Test (BS004.001)

Test Case Description

This test demonstrates the ability to initialize and shutdown the Planning system in an orderly fashion. Using a system account with appropriate privileges, commands are entered to initialize the Planning system. The system status is monitored to determine the status of initialization. System initialization is timed. Once the system is successfully initialized, commands are entered for orderly shutdown. Again, the system is monitored to determine shutdown status. Shutdown is timed.

Test Configuration

Hardware - Planning Database Server host, Production Planner workstation

Software - Production Planning, Production Management, Production Management DBMS

Data - N/A

Test Support Required

N/A

Test Inputs

A series of commands are entered for initialization, shutdown and system monitoring.

Test Outputs

System monitoring to confirm the state of the Planning system. Timing measurements are collected for initialization and shutdown.

Success Criteria

The system commands are accepted and successful initialization and shutdown of the system is confirmed by system monitoring. System initialization and shutdown are completed within determined time requirements.

4.2.3.2 Test Case 2: Planning System Recovery Test (BS004.002)

Test Case Description

This test demonstrates the ability to recover from a fault during initialize and shutdown of the ingest system. Using a system account with appropriate privileges, commands are entered to initialize the ingest system. The system status is monitored to determine the status of initialization. Before initialization is complete a system fault is simulated. The system status is monitored to verify successful recovery from the fault. Once the system is successfully initialized, commands are entered for orderly system shutdown. Again, a system fault is simulated. System status is monitored to verify successful shutdown of the system.

Test Configuration

Hardware - Planning Database Server host, Production Planner workstation

Software - Production Planning, Production Management, Production Management DBMS

Data - N/A

Test Inputs

A series of commands are entered for initialization, shutdown and system monitoring. System faults of hardware components are simulated.

Test Outputs

System monitoring to confirm the state of the system.

Success Criteria

The system commands are accepted and successful initialization and shutdown of the system is confirmed by system monitoring. System status monitoring correctly displays the system configuration including detection of simulated system faults.

4.2.3.3 Test Case 3: Planning Operating System, Utilities and Tools Test (BS004.003)

Test Case Description

This test case verifies that the operating system for each UNIX platform in the science processing environment is in compliance with POSIX.2 standards and has C shell, Korn shell, and Bourne shell installed by running C shell, Korn shell, and Bourne shell through the POSIX checker and invoking each shell. Utilities such as: perl, emacs, gzip, tar, imake, prof, gprof, nm, man, vi, make, lex and yacc must also be available. Additional tools for memory leaks analysis and screen capture are necessary.

Test Configuration

Hardware - Planning Database Server host, Production Planner workstation

Software - N/A

Data - N/A

Test Support Required

Executables are available to test memory leak analyzer

Test Input

UNIX commands to invoke C shell, Korn shell, Bourne shell, perl, emacs, gzip, tar, imake, prof, gprof, nm, man, vi, make, lex and yacc. Memory leak analyzer and screen capture tool are used while running the executables.

Expected Test Outputs

Active POSIX.2 compliant C shell, Korn shell, and Bourne shell; reports from screen captures and memory leak analysis.

Success Criteria

For each representation of a Processing hardware/software environment, evidence of POSIX.2 compliance shall be shown and a functioning UNIX shells and utilities will be proven through logs and messages generated by the POSIX checker and status messages generated by invoking each command. Ability to use memory leak analyzer and screen capture is demonstrated.

4.2.3.4 Test Case 4: Data Query Test (BS004.004)

Test Description

This test demonstrates the capability to perform data query to Data Server for the input data. Upon receiving a Subscription Confirmation which notifies data availability from a Data Server as a result of data subscription request, a data query is sent to that Data Server for input data from the data collection start time to present time. In response of the query, the list of granule IDs is accepted from the Data Server and maintained in Planning database.

Test Configuration

Hardware - Planning Database Server host , Production Planner workstation

Software - Production Planning, Production Management, Production Management DBMS

Data - CERES L0, LIS L0 data granule, PGE

Test Support Required

Production Request has been received. Simulator for Data Server Subscription Confirmation and data query response including a list of granule IDs.

Test Input

A subscription is entered when subscription alert shown on the terminal screen. Once production request is successfully accepted, Operations request is entered to browse the Planning database

Expected Test Outputs

Processing Log; database is updated with a list of granule IDs received.

Success Criteria

Log file shows the data query messages. The list of granule IDs is placed in the Planning database.

4.2.3.5 Test Case 5: Retrieving Candidate/Active Plans Test (BS004.005)

Test Case Description

This test verifies the capability to send to Data Server (local storage) the electronic copies of the candidate/active plans and their corresponding metadata to Data Server for storage and distribution after they have been created or activated. These data are then retrieved for review after they have been stored based on specific queries.

Test Configuration

Hardware - Planning Database Server host, Production Planner workstation

Software - Production Planning, Production Management, Production Management DBMS

Data - PGE

Test Support Required

Existing standard processing requests, PGE information, data availability schedules (DASs) and production rules in Planning database. System disk is used to generate Data Server.

Test Inputs

Plan Creation and Plan Activation requests are manually entered through the HMI. After the plan is created or activated, requests are entered through the HMI to view the plans.

Expected Test Outputs

Copy of each plan is sent for storage. Plan is displayed on terminal screen.

Success Criteria

A response is displayed to the terminal screen indicating the successful status of the new created candidate plan or active plan. The plan is available for viewing upon request and it should reflect the information in the Planning databases such as the production requests, the priorities and the production rule. Plan specifies the timeline for execution of production generation executable (PGE) to satisfy the production request.

4.2.3.6 Test Case 6: Submittal of Data Processing Request Test (BS004.006)

Test Case Description

This test verifies the capability to prepare and submit data processing request upon a receipt a subscription notice from Data Server. Operations Staff is informed of input data arrival. Subscription notice is used to notify that input data of the data processing request is available at local data server. Data processing request will be sent for processing if all the input data and the algorithm are available and have passed Quality Assurance (QA) for a particular planned activity (i.e., PGE). A Data Processing Request Response is then sent from Processing to inform the status of DPR validation and queuing. If input data has not passed QA, its status is updated to reflect an expired QA time-out and DPR is marked as "complete" for the reason of bad input data.

Test Configuration

Hardware - Planning Database Server host, Production Planner workstation, Science Processor, Production Queue Control workstation

Software - Production Planning, Production Management, Production Management DBMS, Processing Management, Processing Queue Management, Processing Queue Envelope

Data - CERES L0, LIS L0 data granule, PGE

Test Support Required

Existing active plan and PGE. Test driver to generate Data Server messages subscription notice and DAS

Test Inputs

A receipt of subscription notices on arrivals of input data.

Expected Test Outputs

Data processing requests are sent to processing resource. Response is then sent to terminal screen.

Success Criteria

A response is displayed to the terminal screen indicating the successful acceptance of the data processing request. DPR is not sent to Processing if inputs has not passed QA.

4.2.3.7 Test Case 7: Cancellation of Active Plan Test (BS004.007)

Test Case Description

This test verifies the ability to cancel an active plan upon receiving the message from Operations Staff to cancel. Operations Staff is allowed to indicate the list of DPRs to be completed prior to the termination. For other unfinished DPR, Data Processing Cancellation Requests are sent to Processing to terminate them. They are deleted from the processing queue, and resources are deallocated. If data staging, destaging or PGE execution is in progressed, it is terminated immediately. Successful cancellation response and Completion Notification are returned to Planning. The "dynamic" status of the active plan is also updated to indicate the modification.

Test Configuration

Hardware - Planning Database Server host, Production Planner workstation, Science Processor, Production Queue Control workstation

Software - Production Planning, Production Management, Production Management DBMS, Processing Management, Processing Queue Management, Processing Queue Envelope, Resource Management

Data - CERES L0, LIS L0 data granule

Test Support Required

Existing active plan with corresponding data processing requests

Test Inputs

An Operations Staff’s requests to view and cancel the active plan. The plan is displayed so its dynamic status can be viewed.

Expected Test Outputs

Processing Log; Resource Management Information update; Planning database update; a response is returned to terminal screen

Success Criteria

Processing log accounts all activities. The response indicates the acceptance of the cancellation request and its status. PGEs’ states are changed to “completion: canceled by Operations Staff” in the active plan. Alert is sent to terminal screen indicating a new plan can be activated. If all the processing requests associated with the original production request are canceled, the production

request is removed from the Planning database. Resource Utilization Report collects the new hardware resource utilization and availability indicating resources have been deallocated.

4.2.3.8 Test Case 8: Transition of One Active Plan to Another Test (BS004.008)

Test Case Description

This test demonstrates the capability to activate a new plan when there is already existing a current active plan. The current active plan is automatically canceled when a Plan Activation Request is received to activate the different plan.

Test Configuration

Hardware - Planning Database Server host, Production Planner workstation, Science Processor, Production Queue Control workstation

Software - Production Planning, Production Management, Production Management DBMS, Processing Management, Processing Queue Management, Processing Queue Envelope, Resource Management

Data - CERES L0, LIS L0 data granule, PGE

Test Support Required

There exist an active plan and a candidate plan

Test Input

Plan Activation Request is entered through the HMI to activate the candidate plan.

Expected Test Outputs

A new plan is activated; Processing Log

Success Criteria

The response of the request is successfully displayed on terminal screen with good status return. The new plan should contain the necessary "Pending for Processing" PGEs to generate the requested data product which maybe different from the last active plan. The Processing Log accounts the cancellation and activation.

4.2.3.9 Test Case 9: Product Generation Test (BS004.009)

Test Case Description

This test verifies the ability to generate data product required by a Standard production request entered. The production request is placed in a candidate plan. Product scheduling is sent to MSS. When this plan become active and the required input data is available, data processing request is prepared and submitted for processing. After successful validation and queuing, a response will be sent to the requester indicating the status of both tasks. If there is error in either task, the response is sent immediately with reason for rejection. Data staging and then PGE execution begin when resources are available. A Completion Notification will be sent to the requester to

notify the status of the processing when execution has completed. The status of the PGE will be updated in the active plan. Processing status and data quality are forwarded to MSS. DPR is then removed from the processing queue. Processing Log accounts all processing activities. Interfaces with MSS and Data Server are not fully tested; instead, only messages are being monitored

Test Configuration

Hardware - Production Planner workstation, Planning Database Server host, Science Processor, Production Queue Control workstation

Software - Processing Management, Processing Queue Management, Processing Queue Envelope, Resource Management, Processing Operation Interface, Production Planning, Production Management, Production Management DBMS, SDP Toolkit

Data - CERES L0, LIS L0 data granule, PGE

Test Support Required

PGE and input data are available in local storage. Test driver to generate CSMS and Data Server messages. Log file is used to monitor the incoming and outgoing messages of the CIs.

Test Inputs

Production request is entered. A plan is generated and activated.

Test Outputs

Processing Log; Status Information File; Completion Notification is sent to Planning CI and PGE status in the active plan is updated

Success Criteria

Processing Log accounts the activities occurred during data processing. Resource Management Information must capture resource information to reflect the modification in resource utilization. Status Information Files contain detailed information relating to the execution of the PGE. Upon receiving the Completion Notification, the PGE status of the active plan is updated to have "Complete" status. Processing Queue Display is updated when DPR is removed from the queue.

4.2.3.10 Test Case 10: Planning System Fault Test (BS004.010)

Test Case Description

This test demonstrates the ability to perform fault detection and fault isolation. An initialized system is monitored for current system status. The system configuration is modified to simulate system faults. The system status is monitored to determine if the faults are properly detected and reported to MSS. Operations Staff is informed of product generation delays or production faults if there are any. Production planning is instigated. The system status is monitored after fault detection to determine that the system is operating under a modified configuration. This detected fault data can be viewed upon a request entered by Operations Staff. Interface with MSS is not fully tested; instead, only one message to send fault data to MSS is monitored.

Test Configuration

Hardware - Planning Database Server host, Production Planner workstation

Software - Production Planning, Production Management, Production Management DBMS

Data - CERES L0, LIS L0 data granule, PGE

Test Support Required

Planning system is in steady state before fault is induced.

Test Inputs

Processing computer fails during a PGE execution. A request is entered to view the fault data information when a bad response appears on the terminal screen.

Expected Test Outputs

System monitoring to confirm the state of the system. Fault data information is displayed.

Success Criteria

System status is successfully displayed before and after simulated system faults. The system correctly detects and displays system faults. The system successfully continues performing after system faults occur.

4.2.3.11 Test Case 11: Scheduling In Test Environment Test (BS004.011)

Test Case Description

This test verifies the ability of to accept a request from Operations Staff for scheduling algorithm and calibration coefficient at test time in the test environment.

Test Configuration

Hardware - Planning Database Server host, Production Planner workstation, Science Processor, Production Queue Control workstation, Science Software I&T workstation

Software - Processing Management, Processing Queue Management, Processing Queue Envelope, Resource Management, Processing Operation Interface, Planning CI, SDP Toolkit, AI&T

Data - CERES L0, LIS L0 data granule, PGE

Test Support Required

Test and Operation hardware strings are available. Test driver to generate CSMS

Test Inputs

Data processing requests are entered. At the end of the processing a request is entered to view the resource utilization report.

Test Outputs

Processing Log is stored; Resource utilization report is displayed on terminal screen.

Success Criteria

Processing Log captures the successful activities occurred during data processing. Resource Utilization Report indicates normal usage on both strings without effecting or interfering with the operational production environment.

4.2.3.12 Test Case 12: Management Data Test (BS004.012)

Test Case Description

This test verifies the ability to provide the management data to MSS using MSS provided management API. The management data includes: Fault Management data, Performance Management data, Accounting Management data, Accountability Management data, Configuration Management data, Security Management data, and Scheduling Management data.

Test Configuration

Hardware - Planning Database Server host, Production Planner workstation, Science Processor, Production Queue Control workstation

Software - Processing Management, Processing Queue Management, Processing Queue Envelope, Resource Management, Processing Operation Interface, Production Planning, Production Management, Production Management DBMS.

Data - CERES L0, LIS L0 data granule, PGE

Test Support Required

MSS with provided management APIs are available. Log file is used to monitored the outgoing messages. Production request is available in the Planning database.

Test Inputs

Plan is generated and activated.

Test Outputs

Processing Log is stored

Success Criteria

Processing Log captures the activities occurred during the product generation. Log file indicates that messages have been sent to provide management data to MSS.

4.2.3.13 Test Case 13: Planning System Maintenance and Upgrade Test (BS004.013)

Test Case Description

This test demonstrates the ability of Planning System to operate in a degraded/upgraded mode in support of maintenance and upgrading activities. An initialized system is monitored for current system status. The system configuration is modified (i.e., some hardware components are taken off-line, or being added). Planning is instigated with the system in a degraded/upgraded mode. The system status is monitored to determine that it is operating under a modified configuration.

Test Configuration

Hardware - Planning Database Server host, Production Planner workstation

Software - Production Planning, Production Management, Production Management DBMS

Data - CERES L0, LIS L0 data granule, PGE

Test Support Required

Planning system is in steady state

Test Inputs

Commands are entered for system status monitoring. Commands are entered to configure the system to support maintenance activities. Hardware components are taken off-line, or being added putting the system into a degraded or upgraded operational mode. Operations requests for planning are submitted.

Test Outputs

System monitoring to confirm the state of the system.

Success Criteria

Commands are successfully entered for system monitoring and system configuration in support of maintenance activities. Production planning is successfully completed with the system in degraded and upgraded mode.

4.2.3.14 Test Case 14: Planning Performance Test (BS004.014)

Test Case Description

This test demonstrates the ability of Planning System to perform within the timing and storage requirements as specified in the Level 4 requirements. Specifically, this test will verify that Planning hardware:

- supports TBD transactions per day
- provides local storage of TBD gigabytes (GB)
- provides a DBMS storage of TBD GB

Test Configuration

Hardware - Planning Database Server host, Production Planner workstation

Software - Production Planning, Production Management, Production Management DBMS

Data - CERES L0, LIS L0 data granule, PGE

Test Support Required

XRunner and LoadRunner are used to perform automated, load testing and to capture the performance time.

Test Inputs

UNIX commands are invoked to obtain storage information. Entries of production plans are repeatedly tested to verify the performance requirement.

Test Outputs

Performance statistics and storage information

Success Criteria

Performance timing and storage requirements are met. Performance statistics shows TBD transactions have been performed within 24 hours.

4.3 TRMM Ingest Tests

The following subsections include the threads and builds identified to support TRMM Ingest testing. TRMM Ingest testing includes the following threads and builds:

- Ingest Administration Thread
- Ingest Toolkit Thread (V0 migration only)
- TRMM Ingest Build

4.3.1 Ingest Administration Thread (TS014)

This thread demonstrates the ability to manually perform administration functions for ingest activities. Administration activities include: managing physical media for ingest, setting ingest parameter levels, managing the Ingest History Log, executing ingest cancellations, and handling ingest error conditions.

4.3.1.1 Test Case 1: Media Ingest Test (TS014.001)

Test Case Description

This test demonstrates the ability to ingest data from hard media. The data and metadata for ingest is on physical media. A Hard Media Ingest Request is entered. The media is accessed and read. The request is checked to determine if the provider of the media is an authorized provider and if the requested media type is supported. The request is assigned a unique identifier, and data

and metadata are validated for completeness and correct format. The ingest request is logged in the Ingest History Log. Error testing is performed to include, at the minimum, attempted ingest under the following erroneous conditions: invalid media type requested, request submitted by unauthorized provider, invalid data type identifier, missing required files, missing request information, and file transfer failure. All errors are displayed to screen and recorded in the Ingest Error Log.

Test Configuration

Hardware - Workstation, Media and Peripherals (i.e., CDROM, 8mm, 4mm, 3490 tape), Client Host, Working Storage.

Software - Ingest Client Interface CSC, Ingest Request Processing CSC, Ingest Working File Collection CSC, Operator Ingest Interface CSC, Media Handling Software CSC, Ingest DBMS CSC.

Data - TRMM data, V0 data

Test Inputs

Ingest requests for media access and data transfer are submitted by authorized and unauthorized requesters. This test is performed for media ingest of various TRMM and V0 data and metadata to various media types (i.e., CDROM, 8mm, 4mm, 3490 tape). Valid and invalid requests are submitted. Invalid requests include at a minimum: missing required files, file size discrepancy, invalid media type and unauthorized provider.

Test Outputs

Valid data is transferred from media to a staging area. Status messages are displayed to screen indicating successful/unsuccessful data transfer. Ingest data are recorded in the Ingest History Log. Errors encountered during ingest are recorded in the Ingest Error Log.

Success Criteria

All media is properly mounted. Access to read and copy data is successful. All submitted ingest requests are received and correctly validated. Status messages are displayed to screen indicating whether data transfer is successful or unsuccessful. The Ingest History log is accessed and displayed to verify that all data transfers are recorded. The Ingest Error Log is displayed to verify all errors are recorded.

4.3.1.2 Test Case 2: Ingest Threshold Test (TS014.002)

Test Case Description

This test demonstrates the ability to set the threshold levels which dictate the number and volume of ingest requests to be processed concurrently (total and per external data provider). An account is established to allow access for manipulation of system parameters, including adjusting the threshold level for concurrent processing of ingest requests. The current threshold number is displayed and noted. Attempts are made to process more ingest requests than indicated by the threshold level. The threshold level is changed. Again attempts are made to process more ingest

requests than indicted by the threshold level. This test includes verifying the ability to deny unauthorized attempts to set threshold levels. Unauthorized attempts to set threshold levels result in an error status message displayed on the console and recorded in the Error Log.

Test Configuration

Hardware - Workstation, Client Host, Working Storage.

Software - Ingest Client Interface CSC, Ingest Request Processing CSC, Ingest Working File Collection CSC, Operator Ingest Interface CSC, Ingest DBMS CSC.

Data - TRMM data

Test Inputs

A series of ingest requests. The number of ingest requests exceed the threshold level. This test is repeated for several threshold levels.

Test Outputs

Status messages are displayed to screen indicating over threshold levels. Unauthorized attempts are made to alter threshold levels.

Success Criteria

The threshold level is displayed. The number of requests submitted for ingest is correctly determined to be above the threshold level. An error message is displayed at the console. The error message is correct and explains the reason for ingest failure. The threshold level is successfully changed to a new threshold level. New attempts to process ingest requests over the threshold level result in an errors messages displayed to the console. Again each message explains the reason for ingest failure. Unauthorized attempts to alter the threshold level result in error messages displayed to screen. The Ingest Error log is displayed to verify the log indicates unauthorized attempts.

4.3.1.3 Test Case 3: Ingest History Log Test (TS014.003)

Test Case Description

This test demonstrates the ability to display the Ingest History Log. The Ingest History Log records information on each received Ingest Request including: ingest start/stop dates and times, ingest request identifier, external data provider, final service request status, data type identifiers, ingest data volume, number of data sets, number of data files. For this test, a series of Ingest Requests are entered. Upon successful ingest of data the History Log is viewed. Different views of the log are displayed according to selectable parameters : ingest start/stop dates and times, external data provides, data type identifier, final service request status.

Test Configuration

Hardware - Workstation, Client Host, Working Storage

Software - Ingest Client Interface CSC, Ingest Request Processing CSC, Ingest Working File Collection CSC, Operator Ingest Interface CSC, Ingest DBMS CSC.

Data - TRMM data

Test Inputs

A series of Ingest Requests are entered. Requests are made to view the Ingest History Log. Several requests are made to include viewing the log according to all possible selectable parameters.

Test Outputs

The Ingest History Log is displayed according to selected parameters.

Success Criteria

All ingested data is recorded in the Ingest History Log. The log is displayed to verify that all information is recorded for each Ingest Request submitted. The log is viewed according to all selectable parameters. Each view is examined to verify accurate contents.

4.3.1.4 Test Case 4: Administration Ingest Status Test (TS014.004)

This test demonstrates the ability for authorized administration requesters to view the status of Ingest Requests. A series of Ingest Requests are submitted. Before the ingest process completes, Ingest Status Requests are submitted to view Ingest Request processing status. Status displays include: ingest request identifier, data volume, and request state. Views are requested and displayed according to the following parameters: a specified ongoing Ingest Request by request identifier, all ongoing Ingest Requests by user identifier, and all ongoing Ingest Requests. This test includes verifying the ability to deny unauthorized requests. Unauthorized attempts result in an error status message displayed on the console and recorded in the Error Log.

Test Configuration

Hardware - Workstation, Client Host, Working Storage.

Software - Ingest Client Interface CSC, Ingest Request Processing CSC, Ingest Working File Collection CSC, Operator Ingest Interface CSC, Ingest DBMS CSC.

Data - TRMM data

Test Inputs

A series of Ingest Requests are entered. Ingest Status Requests are made to view ingest processing status. Several requests are made to include viewing of status according to all possible selectable parameters. Attempts to submit Ingest Status Requests are made by unauthorized requesters.

Test Outputs

Ingest processing status views are displayed according to selected parameters.

Success Criteria

All Ingest Status Requests submitted are received. For requests submitted by authorized requesters, views are displayed to screen. The views are examined to verify all information requested is properly displayed according to the parameters given in the request. For requests submitted by unauthorized requesters, an error message is displayed on the console and the error is recorded in the Error Log.

4.3.1.5 Test Case 5: Ingest Request Cancel Test (TS014.005)

This test demonstrates the ability for certain accounts with certain system access privileges to cancel processing of Ingest Requests. A series of Ingest Requests are submitted. Before ingest processing completes, an authorized requester submits requests to cancel selected Ingest Requests. Ingest Status reports verify Ingest Requests states as canceled. This test includes verifying the ability to deny unauthorized requests. Unauthorized attempts result in an error status message displayed on the console and recorded in the Error Log. Other error testing includes attempts to: cancel a request already in the canceled state, and cancel a non-existent request.

Test Configuration

Hardware - Workstation, Client Hosts, Working Storage.

Software - Ingest Client Interface CSC, Ingest Request Processing CSC, Ingest Working File Collection CSC, Operator Ingest Interface CSC, Ingest DBMS CSC..

Data - TRMM data

Test Inputs

A series of ingest requests are entered. Requests are entered to cancel certain ingest requests. Attempts to submit Cancellation Requests are made by unauthorized requesters. Attempts to submit various requests which will result in an erroneous state are made (cancel a request already in the canceled state, and cancel a non-existent request).

Test Outputs

Status messages are displayed to the console indicating status of the ingest requests and error conditions. Data not in a canceled state is processed for ingest.

Success Criteria

All ingest requests submitted are received and logged. Ingest Cancellation Requests are received. Data associated with canceled requests is not ingested. Data associated with requests that are not canceled is successfully ingested. Appropriate and correct status messages are displayed for successful/unsuccessful ingest. All errors are identified and recorded in the Error Log.

4.3.1.6 Test Case 6: Ingest Retry Test (TS014.006)

Test Case Description

This test demonstrates the ability to set the number of times a data transfer is attempted for data ingest. An account is established to allow access for manipulation of system parameters, including adjusting the number for retries of data transfer for ingest. The current number is displayed and noted. Ingest requests are submitted which result in failed data transfer, so retry attempts to transfer data occur. The number of retry attempts is changed. Again ingest requests are submitted which result in retry attempts.

Test Configuration

Hardware - Workstation, Client Host, Working Storage.

Software - Ingest Client Interface CSC, Ingest Request Processing CSC, Ingest Working File Collection CSC, Operator Ingest Interface CSC, Ingest DBMS CSC.

Data - TRMM data

Test Inputs

A series of ingest requests resulting in failed transfer and therefore retry transfer attempts are made.

Test Outputs

Display of number of retry attempts which are made for data transfer.

Success Criteria

Attempts to display and change the number of retries for data transfer is successfully allowed from authorized accounts. The number of retries attempted as a result of unsuccessful data transfers is the same as the number entered.

4.3.1.7 Test Case 7: Ingest System Initialization and Shutdown Test (TS014.007)

Test Case Description

This test demonstrates the ability to initialize and shutdown the ingest system in an orderly fashion. Using a system account with appropriate privileges, commands are entered to initialize the ingest system. The system status is monitored to determine the status of initialization. System initialization is timed. Once the system is successfully initialized, commands are entered for orderly system shutdown. Again, the system is monitored to determine system status. System shutdown is timed.

Test Configuration

Hardware - Workstation, Client Host, Working Storage, Archive Storage.

Software - Ingest Client Interface CSC, Ingest Request Processing CSC, Ingest Working File Collection CSC, Operator Ingest Interface CSC, Ingest DBMS CSC, Resource Administration Application CSC.

Data - N/A

Test Inputs

A series of commands are entered for initialization, shutdown and system monitoring.

Test Outputs

System monitoring to confirm the state of the system. Timing measurements are collected for system initialization and shutdown.

Success Criteria

The system commands are accepted and successful initialization and shutdown of the system is confirmed by system monitoring. System initialization and shutdown are completed within determined time requirements.

4.3.1.8 Test Case 8: Ingest System Fault Isolation Test (TS014.008)

Test Case Description

This test demonstrates the ability of the ingest system to perform fault detection and fault isolation. An initialized system is monitored for current system status. The system configuration is modified to simulate system faults. The system status is monitored to determine if the faults are properly detected. Ingest processing is instigated. The system status is monitored after fault detection to determine that the system is operating under a modified configuration.

Test Configuration

Hardware - Workstation, Client Host, Working Storage, Archive Storage.

Software - Ingest Client Interface CSC, Ingest Request Processing CSC, Ingest Working File Collection CSC, Operator Ingest Interface CSC, Ingest DBMS CSC, Resource Administration Application CSC.

Data - N/A

Test Inputs

Commands are entered for system status monitoring. System faults are simulated. Ingest requests for ingest processing are submitted.

Test Outputs

System monitoring to confirm the state of the system.

Success Criteria

System status is successfully displayed before and after simulated system faults. The system correctly detects and displays system faults. The system successfully performs system ingest processing after system faults occur.

4.3.1.9 Test Case 9: Ingest Maintenance Test (TS014.009)

Test Case Description

This test demonstrates the ability of the ingest system to operate in a degraded mode in support of maintenance activities. An initialized system is monitored for current system status. The system configuration is modified (i.e., some hardware components are taken off-line). Ingest processing is instigated with the system in a degraded mode. The system status is monitored to determine that the system is operating under a modified configuration.

Test Configuration

Hardware - Workstation, Client Host, Working Storage, Archive Storage.

Software - Ingest Client Interface CSC, Ingest Request Processing CSC, Ingest Working File Collection CSC, Operator Ingest Interface CSC, Ingest DBMS CSC, Resource Administration Application CSC.

Data - N/A

Test Inputs

Commands are entered for system status monitoring. Commands are entered to configure the system to support maintenance activities. Hardware components are taken off-line, putting the system into a degraded operational mode. Ingest requests for ingest processing are submitted.

Test Outputs

System monitoring to confirm the state of the system.

Success Criteria

Commands are successfully entered for system monitoring and system configuration in support of maintenance activities. Ingest processing is successfully completed with the system in degraded mode.

4.3.1.10 Test Case 10: Ingest System Recovery Test (TS014.010)

Test Case Description

This test demonstrates the ability to recover from a fault during initialize and shutdown of the ingest system. Using a system account with appropriate privileges, commands are entered to initialize the ingest system. The system status is monitored to determine the status of initialization. Before initialization is complete a system fault is simulated. The system status is monitored to verify successful recovery from the fault. Once the system is successfully

initialized, commands are entered for orderly system shutdown. Again, the system is monitored to determine system status. Again, a system fault is simulated. System status is monitored to verify successful shutdown of the system.

Test Configuration

Hardware - Workstation, Client Host, Working Storage, Archive Storage.

Software - Ingest Client Interface CSC, Ingest Request Processing CSC, Ingest Working File Collection CSC, Operator Ingest Interface CSC, Ingest DBMS CSC, Resource Administration Application CSC.

Data - N/A

Test Inputs

A series of commands are entered for initialization, shutdown and system monitoring. System faults of hardware components are simulated.

Test Outputs

System monitoring to confirm the state of the system.

Success Criteria

The system commands are accepted and successful initialization and shutdown of the system is confirmed by system monitoring. System status monitoring correctly displays the system configuration including detection of simulated system faults.

4.3.2 Ingest Toolkit Thread (TS015)

This thread demonstrates the ability to ingest V0 data. V0 data is ingested using electronic and media transfer of data.

4.3.2.1 Test Case 1: Optical Disk V0 Ingest Test (TS015.001)

This test demonstrates the capability to ingest V0 data. The V0 ingest data is received via optical disk. The disk is mounted and the V0 data and metadata is accessed. The data is received in V0 native format. The data is read and entered for ingest. The data is validated for completeness and correct format. Data is placed on a staging area.

Test Configuration

Hardware - Workstation, Client Host, Working Storage, Optical Disk Peripherals.

Software - Ingest Client Interface CSC, Ingest Request Processing CSC, Ingest Working File Collection CSC, Viewing Tools CSC, Media Handling Software CSC.

Data - V0 data

Test Inputs

Data requests are submitted for V0 data ingest.

Test Outputs

V0 data is placed on staging area.

Success Criteria

All V0 data is successfully validated and ingested. All ingested data is recorded in the Data Receipt Log. Status messages are displayed to the console.

4.3.2.2 Test Case 2: 8mm Tape V0 Ingest Test (TS015.002)

This test demonstrates the capability to ingest V0 data. The V0 ingest data is received via 8mm tape. The tape is mounted and the V0 data and metadata is accessed. The data is received in V0 native format. The data is read from the tape and entered for ingest. The data is validated for completeness and correct format. Once verified, the data is placed on a staging area.

Test Configuration

Hardware - Workstation, Client Host, Working Storage, 8mm tape peripherals.

Software - Ingest Client Interface CSC, Ingest Request Processing CSC, Ingest Working File Collection CSC, Viewing Tools CSC, Media Handling Software CSC.

Data - V0 data

Test Inputs

Data requests are submitted for V0 data ingest.

Test Outputs

V0 data is placed on staging area.

Success Criteria

All V0 data is successfully validated and ingested. All ingested data is recorded in the Data Receipt Log. Status messages are displayed to the console.

4.3.2.3 Test Case 3: FTP V0 Ingest Test (TS015.003)

This test demonstrates the capability to ingest V0 data. The V0 ingest data is received via electronic data transfer via FTP. The data is received in V0 native format. The data is entered for ingest. The data is validated for completeness and correct format. Data is placed on a staging area.

Test Configuration

Hardware - Workstation, Client Host, Working Storage.

Software - Ingest Client Interface CSC, Ingest Request Processing CSC, Ingest Working File Collection CSC, Viewing Tools CSC.

Data - V0 data

Test Inputs

Data requests are submitted for V0 data ingest.

Test Outputs

V0 data is placed on staging area.

Success Criteria

All V0 data is successfully validated, converted (if necessary) and ingested. All ingested data is recorded in the Data Receipt Log. Status messages are displayed to the console.

4.3.3 TRMM Ingest Build (BS005)

This build demonstrates the capability to provide an interface for ingest of data from external providers. Certain ingest interface functions are established during IR1. These include: the ability to accept and validate DANs from SDPF and TSDIS and to ingest NOAA data using a polling protocol. DANs from SDPF and TSDIS are processed and data is ingested. Additional responsibilities in Release A include: metadata generation, metadata extraction, and data conversion.

4.3.3.1 Test Case 1: TSDIS FTP-Get File Ingest Test (BS005.001)

Test Case Description

This test demonstrates the ability to ingest a data collection containing a single data file and multiple data files of TSDIS data. A Data Availability Notice (DAN) is sent from a simulated TSDIS interface and is received by ECS, indicating the availability of data for ingest. The DAN contains a header, linked to a product specification for a single or data file or multiple data files. Upon receipt of the DAN the file(s) indicated in the DAN is then retrieved using a file transfer protocol. Data ingest is recorded in the Ingest History Log. Data and metadata is validated. The data is placed on temporary magnetic storage disk. This process is monitored to determine that data transfer occurs. Error testing is performed to include, at the minimum, attempted ingest under the following erroneous conditions: file size discrepancy, missing request information, invalid data type identifier, missing required files, unauthorized requester, inability to transfer data within a certain date/time, and file transfer failure. All errors are reported to the ingest requester and recorded in the Error Log.

Test Configuration

Hardware - Workstation, Client Host, Working Storage.

Software - Ingest Client Interface CSC, Automated Network Ingest Client CSC, Ingest Request Processing CSC, Ingest Working File Collection CSC, Operator Ingest Interface CSC, Ingest DBMS CSC, Viewing Tools CSC.

Data - PR, TMI, GV and VIRS data.

Test Support Required

TSDIS interface simulator

Test Input

Inputs to this test include: Data Availability Notices, at least one data file for each data type to include PR, TMI, GV and VIRS data for single and multiple file ingest, and data delivery messages. Valid and invalid data and metadata is submitted.

Expected Test Outputs

Outputs to this test include notices or messages to TSDIS indicating successful/unsuccessful transfer of data. The History Log is displayed to verify ingest of data sets. The Error Log is updated to record error conditions. Data is displayed for examination.

Success Criteria

For valid data submission the data is successfully ingested. Data is placed on a magnetic staging disk. Data acknowledgment for each DAN is sent to TSDIS. Notices are sent to TSDIS acknowledging data delivery for valid data sets and error messages for unsuccessful data transfers. Data comparison of the data before ingest to data which is successfully ingested, shows no significant differences. All data messages contain correct and appropriate wording. The History Log and Error Log is displayed and inspected to verify that log contents reflects ingest activities.

4.3.3.2 Test Case 2: SDPF FTP-Get File Ingest Test (BS005.002)

Test Case Description

This test demonstrates the ability to ingest a data collection containing a single data file and multiple data files of SDPF data. A Data Availability Notice (DAN) is sent from a simulated SDPF interface and is received by ECS, indicating the availability of data for ingest. The DAN contains a header, linked to a product specification for a single or data file or multiple data files. Upon receipt of the DAN the file indicated in the DAN is then retrieved using a file transfer protocol. The data is placed on temporary magnetic storage disk. Data ingest is recorded in the Ingest History Log. This process is monitored to determine when data transfer occurs. Error testing is performed to include, at the minimum, attempted ingest under the following erroneous conditions: file size discrepancy, missing request information, invalid data type identifier, missing required files, unauthorized requester, inability to transfer data within a certain date/time and file transfer failure. All errors are reported to the ingest requester and recorded in the Ingest Error Log.

Test Configuration

Hardware - Workstation, Client Host, Working Storage.

Software - Ingest Client Interface CSC, Automated Network Ingest Client CSC, Ingest Request Processing CSC, Ingest Working File Collection CSC, Operator Ingest Interface CSC, Ingest DBMS CSC, Viewing Tools CSC, Ingest File Software Storage CSC.

Data - L0 data ingest, CERES and LIS data.

Test Support Required

SDPF external interface simulator.

Test Input

Inputs to this test include: Data Availability Notices, at least one data file for each data type to include CERES and LIS data for single and multiple file ingest, and data delivery messages. Valid and invalid data is submitted.

Expected Test Outputs

Outputs to this test include notices or messages to SDPF indicating successful/unsuccessful transfer of data. The History Log is displayed to verify ingest of data sets. The Error Log is updated to record error conditions. Data is displayed for examination.

Success Criteria

For valid data submission the data is successfully ingested. Data is placed on a magnetic staging disk. Data acknowledgment for each DAN is sent to SDPF. Notices are sent to TSDIS acknowledging data delivery for valid data sets and error messages for unsuccessful data transfers. Data comparison of the data before ingest to data which is successfully ingested, shows no significant differences. All data messages contain correct and appropriate wording. The History Log and Error Log is displayed and inspected to verify that log contents reflects ingest activities.

4.3.3.3 Test Case 3: NOAA Polling Ingest Request Test (BS005.003)

Test Case Description

This test demonstrates the ability to ingest a series of data collections, each containing single or multiple granules of data using a polling protocol. A location accessible to ESN, which is designated for the polling protocol, is periodically checked for the presence of data granule files. After detecting data files, a Polling Ingest Request is submitted for file retrieval. Files are retrieved, validated and placed in working storage. All Ingest Requests are recorded in the Ingest History Log. Error testing is performed to include, at the minimum, attempted ingest under the following erroneous conditions: file size discrepancy, missing request information, invalid data type identifier, missing required files, unauthorized requester, and file transfer failure. All errors are reported to the ingest requester and recorded in the Error Log. This test also demonstrates the capability for an authorized requester to modify the set period between polling checks. Unauthorized attempts are detected and recorded in the Ingest Error Log.

Test Configuration

Hardware - Workstation, Client Hosts, Working Storage.

Software - Ingest Client Interface CSC, Polling Ingest Client Interface CSC, Ingest Request Processing CSC, Ingest Working File Collection CSC, Operator Ingest Interface CSC, Ingest DBMS CSC, Viewing Tools CSC.

Data - NOAA data

Test Support Required

N/A

Test Input

Valid and invalid NOAA data files are placed in the polling area at different times. Polling Ingest Requests are submitted upon detection of the NOAA files. Requests are entered by authorized and unauthorized requesters to change the designated time period between pollings.

Expected Test Outputs

Valid NOAA data files are ingested. The Ingest History Log is updated to include all successful data ingest. The Error Log is updated to reflect detection of unauthorized attempts to modify the time interval between polling checks and any other error conditions. Failed data transfer results in error status messages to the requester.

Success Criteria

All valid data placed in the designated polling area is successfully retrieved and ingested. Data is placed on a magnetic staging disk. The ingest viewing tool aids in data examination. A comparison of the data before ingest and data after ingest, shows no significant differences. The Ingest History Log records all successful data ingest. Modification to the polling time interval between data checks is verified. The Error Log records all attempts of unauthorized requesters to modify polling time interval and all other error conditions. Error messages are displayed for failed data transfer.

4.3.3.4 Test Case 4: User Interactive Network Ingest Test (BS005.004)

Test Case Description

This test demonstrates the ability for a user to ingest a series of data and document data collections, each containing single or multiple granules of data using an interactive network ingest protocol. Network Ingest Requests and Document Ingest Requests are submitted using the interactive Network Ingest option on a GUI interface. The ingest requests are received, validated to determine if the request originated from an authorized source and also validated to determine if the date/time (indication of how long the data will remain available) is valid. The request is assigned a unique identifier. If valid, the data is transferred from a file location designated in the ingest request. If not valid, the request is recorded in the Error Log and a status message is sent to the requester. Data successfully ingested is recorded in the Ingest History Log. Error testing is

performed to include, at the minimum, attempted ingest under the following erroneous conditions: file size discrepancy, invalid data type identifier, missing required request information, missing required metadata, metadata parameters out of range, unauthorized requester, file transfer failure . All errors are recorded in the Error Log. Error status messages are displayed to the requester in the event of failed file transfer.

Test Configuration

Hardware - Workstation, Client Hosts, Working Storage.

Software - Ingest Client Interface CSC, User Network Ingest Interface CSC, Ingest Request Processing CSC, Ingest Working File Collection CSC, Operator Ingest Interface CSC, Ingest DBMS CSC, Viewing Tools CSC.

Data - tbd

Test Support Required

N/A

Test Input

Several valid Network Ingest Requests and Document Ingest Requests are submitted using the GUI interface. Requests are entered by authorized and unauthorized requesters. Various invalid requests are submitted to include at a minimum: file size discrepancy, invalid data type identifier, missing required files, unauthorized requester, file transfer failure due to invalid data location indicated in the request.

Expected Test Outputs

Valid data files are ingested. The Ingest History Log is updated to include all successful data ingest. The Error Log is updated to reflect detection of unauthorized attempts to ingest data and ingest error conditions. Error status messages are sent to the requester.

Success Criteria

All valid ingest requests result in successful ingest. Data is placed on a magnetic staging disk. The ingest viewing tool aids in data examination. A comparison of the data before ingest and data after ingest, shows no significant differences. The Ingest History Log records all successful data ingest. The Error Log records all attempts of unauthorized requesters to ingest data and all unsuccessful attempts for data ingest resulting from error conditions.

4.3.3.5 Test Case 5: User Interactive Network Status Request Test (BS005.005)

Test Case Description

This test demonstrates the ability for a user to request status of Network Ingest Requests and Document Ingest Requests. A series of Ingest Requests are submitted. Before the ingest process completes, Ingest Status Requests are submitted. Status Requests are submitted to determine the status of specific ongoing Ingest Requests, identified by a Request Identifier, or to determine the

status of all the user's ongoing requests. The requester has the capability to display the status information. Status displays include: ingest request identifier, data volume, and request state.

Test Configuration

Hardware - Workstation, Client Hosts, Working Storage.

Software - Ingest Client Interface CSC, User Network Ingest Interface CSC, Ingest Request Processing CSC, Ingest Working File Collection CSC, Operator Ingest Interface CSC, Ingest DBMS CSC.

Data - tbd

Test Support Required

N/A

Test Inputs

A series of Network Ingest Requests and Document Ingest Requests are entered. Ingest Status Requests are submitted to view ingest processing status. Several requests are made to include viewing of status according to all possible selectable parameters. Attempts to submit Ingest Status Requests are made by unauthorized requesters.

Test Outputs

Ingest processing status views are displayed according to selected parameters.

Success Criteria

All Ingest Status Requests submitted are received. For requests submitted by authorized requesters, views are displayed to screen. The views are examined to verify all information requested is properly displayed according to the parameters given in the request. For requests submitted by unauthorized requesters, an error message is displayed on the console and the error is recorded in the Error Log.

4.3.3.6 Test Case 6: Ingest Priority Test (BS005.006)

Test Case Description

This test demonstrates that ingest requests are processed according to priority. Ingest priority is determined for each Ingest Request based on the External Data Provider and the requested ingest priority in the request. Requests of equal priority are processed on a first-in, first-out basis. A series of Ingest Requests are submitted, to include different priorities. The Ingest process is monitored. After a short period of time, additional Ingest Requests are submitted. These requests are to be added to the existing ingest requests according to ingest priority.

Test Configuration

Hardware - Workstation, Client Host, Working Storage.

Software - Ingest Client Interface CSC, Automated network Ingest Client Interface CSC, Polling Ingest Client Interface CSC, User Network Ingest Interface CSC, Ingest Request Processing CSC, Ingest Working File Collection CSC, Operator Ingest Interface CSC, Ingest DBMS CSC.

Data - tbd

Test Support Required

N/A

Test Inputs

Ingest Requests to include all priority levels. Status monitoring requests. This test is repeated for each ingest protocol (Network Ingest, Polling Ingest, Document Ingest).

Test Outputs

Ingest Requests processed according to priority.

Success Criteria

All Ingest Requests submitted are received and processed according to priority.

4.3.3.7 Test Case 7: Metadata Validation Test (BS005.007)

Test Case Description

This test demonstrates the ability to automatically check metadata provided with data for ingest. All data received from an external interface must either provide metadata or provide enough information so metadata can be extracted. This test verifies the capability to perform an automatic check of data and metadata when metadata is provided with data for ingest. Metadata information includes a description of the content, format and utility of the data provided for ingest. Upon arrival of data for ingest, an automatic check is performed to determine the if metadata is present and consistency checks are performed to determine if the metadata is complete and correct. Status is sent to the data ingest provider indicating success/failure of validation. The Error Log is updated to record any metadata validation failure.

Test Configuration

Hardware - Workstation, Client Host, Working Storage.

Software - Ingest Client Interface CSC, Automated Network Ingest Client Interface CSC, Polling Ingest Client Interface CSC, User Network Ingest Interface CSC, Ingest Request Processing CSC, Ingest Working File Collection CSC, Operator Ingest Interface CSC, Ingest DBMS CSC, Ingest Data Preprocessing CSC.

Data - TRMM, NOAA data

Test Input

Ingest requests (electronic) including data and metadata. Valid and invalid metadata is submitted for ingest. This test is repeated for each ingest protocol (Network Ingest, Polling Ingest, Document Ingest).

Expected Test Outputs

Ingest requests are monitored. Status messages are displayed to screen. The Error Log is updated to reflect all metadata validation errors.

Success Criteria

Appropriate status messages are displayed for successful metadata validation and unsuccessful validation. Ingest requests which do not pass metadata checks are recorded in the Ingest Error Log.

4.3.3.8 Test Case 8: Metadata Extraction Test (BS005.008)

Test Case Description

This test demonstrates the ability to extract metadata from data received for data ingest. All data received from an external interface must either provide metadata or provide enough information so metadata can be extracted. This test verifies the capability to perform an automatic check of data, when metadata is not provided with data for ingest, to determine if proper and complete information is provided so metadata can be generated. Upon arrival of data for ingest, the data is automatically checked to determine if metadata can be extracted. If validation is successful, metadata is generated. Metadata items generated include: a unique granule id, date and time of storage, data volume, physical location of data, data check status and unique format identifiers. If the validation is unsuccessful, a status message to sent to the requester and the Error Log is updated. Error testing includes, at a minimum: missing metadata parameters, and out of range parameters

Test Configuration

Hardware - Workstation, Client Host, Working Storage.

Software - Ingest Client Interface CSC, Automated network Ingest Client Interface CSC, Polling Ingest Client Interface CSC, User Network Ingest Interface CSC, Ingest Request Processing CSC, Ingest Working File Collection CSC, Operator Ingest Interface CSC, Ingest DBMS CSC, Ingest Data Preprocessing CSC.

Data - TRMM, NOAA data

Test Input

Ingest requests (electronic) including data for metadata generation. Valid and invalid requests are submitted for ingest. This test is repeated for each ingest protocol (Network Ingest, Polling Ingest, Document Ingest).

Expected Test Outputs

Ingest requests are monitored. Status messages are displayed to screen. The Error Log is updated to reflect all metadata validation errors.

Success Criteria

Appropriate status messages are displayed for successful metadata validation and unsuccessful validation. Ingest requests which do not pass metadata checks are recorded in the Ingest Error Log.

4.3.3.9 Test Case 9: Data Conversion Test (BS005.009)

Test Case Description

This test demonstrates the ability to translate data to an ECS data format for ingest. Data arriving for ingest (electronic or hard media) may be in various formats. Upon receiving data for ingest, the data is converted to an ECS format. All failed conversions are recorded in the Ingest Error Log.

Test Configuration

Hardware - Workstation, Client Host, Working Storage.

Software - Ingest Client Interface CSC, Automated Network Ingest Client Interface CSC, Polling Ingest Client Interface CSC, User Network Ingest Interface CSC, Ingest Request Processing CSC, Ingest Working File Collection CSC, Operator Ingest Interface CSC, Ingest DBMS CSC, Viewing Tools CSC, Ingest Data Preprocessing CSC.

Data - TRMM data

Test Support Required

N/A

Test Input

Valid and invalid data requests are submitted for ingest in a format other than ECS. This test is repeated for each ingest protocol (Network Ingest, Polling Ingest, Document Ingest, Hard Media).

Expected Test Outputs

Data is converted to ECS format and ingested. The data is viewed for examination. The Error Log records failed conversion attempts.

Success Criteria

Valid data is successfully converted into ECS format and ingested. Status messages indicating successful ingest are displayed. Data is viewed and examined to determine if the conversion is correct. Unsuccessful conversion attempts are recorded in the Ingest Error Log.

4.3.3.10 Test Case 10: Ingest Performance Test (BS005.010)

Test Case Description

This test demonstrates the ability to perform within the rate and storage capacity requirements as specified in the level 4 requirements. Specifically, this test verifies that the system has the capability of:

- performing ingest within determined bytes/seconds
- performing ingest at nominal and maximum rates of determined bytes per day
- performing V0 data ingest at nominal rate of determination bytes per day
- receiving data once per day within 24 hours of the last acquisition
- performing a determined number of transaction per day according to DAAC site
- providing a determined local storage capacity (TBD GB)

Test Configuration

Hardware - Workstation, Client Host, Working Storage, Media, Peripherals.

Software - Ingest Client Interface CSC, Automated Network Ingest Client Interface CSC, Polling Ingest Client Interface CSC, User Network Ingest Interface CSC, Ingest Request Processing CSC, Ingest Working File Collection CSC, Operator Ingest Interface CSC, Ingest DBMS CSC, Viewing Tools CSC, Ingest Data Preprocessing CSC.

Data - TRMM data, V0 data

Test Support Required

XRunner Tool, LoadRunner Tool, other TBD performance tools

Test Input

Ingest data at various timing and throughput rates.

Expected Test Outputs

Outputs include performance statistics to include timing, throughput and storage capacity measurements.

Success Criteria

This test is considered successful if ingest system performance meets performance levels stated in the level 4 requirements. The performance criteria must be met during periods of low system utilization and high system utilization.

4.4 Data Archive and Distribution Tests

The following subsections include the threads and builds identified to support testing of Data Archive and Distribution. Data Archive and Distribution testing includes the following threads and builds:

- Data Storage Thread
- Distribution Thread
- Schema Generation Thread
- Archive Administration Thread
- TRMM Ingest Build
- Data Storage and Distribution Build

4.4.1 Data Storage Test (TS016)

This thread demonstrates the ability to place data into secondary storage. This includes the capability to control the placement of various data into storage repositories, and log storage activity.

4.4.1.1 Test Case 1: Data Type Insertion Test (TS016.001)

Test Case Description

This test demonstrates the ability to receive, check and archive Release A data types. Upon receiving data, the data is checked and if deemed valid, the data is inserted into the archive. This includes identifying each data granule as it is archived. Each data granule successfully archived is recorded in the Inventory Update Log. The log is in chronological order and is displayed, viewed and printed. Several views of the Inventory Update Log are displayed according to selected time period parameters.

Test Configuration

Hardware - Workstation, Working Storage, Data Repository, printer.

Software - Data Server Interface, Earth Science Object Class Libraries, Basic Structured Class Libraries

Data - TRMM and V0 data.

Test Support Required

driver for data insertion request (ingest /processing)

Test Input

Inputs to this test include storage of each data type for the Release A time frame. Data, at a minimum includes:

- EOS instrument data and metadata

- simulated EOS instrument data and metadata
- non-EOS data
- calibration data and metadata
- algorithm package data and metadata
- inventory characteristic data and metadata
- validated inventory data
- orbit/attitude data and metadata
- production history data and metadata
- production plan data and metadata
- QA statistics and metadata
- spacecraft historical data and metadata
- correlative data and metadata
- V0 migration data and metadata

Commands are entered to set the time period parameters for Inventory Update Log display.

Expected Test Outputs

Outputs to this test include Inventory Update Log displays, views and printed hardcopy.

Success Criteria

All data types submitted for insertion are successfully placed into the archive. All data granules are uniquely identified. Data successfully entered into the archive is recorded in the Inventory Update Log. The Inventory Update Log is displayed, viewed, and printed. Different views of the Inventory Update Log are displayed according to the parameters set. The log contents is examined for correct content and to determine if the entries are in chronological order.

4.4.1.2 Test Case 2: Archive Storage Test (TS016.002)

Test Case Description

This test demonstrates the ability to store archived data. This includes checking each storage request for the correct type of data in all fields to include, at a minimum: identifier, date of request, priority, data type and original identifier. All requests are recorded in chronological order in an Archive Activity Log. The Log contains request id, operation requested, completion status, and a date/time stamp. Error testing is performed to include, at the minimum, the following erroneous conditions: insertion requests with incorrect fields for request identifier, date of request, priority, data type identifier, and original identifier.

Test Configuration

Hardware - Workstation, Working Storage, Data Repository, Permanent Archive.

Software - Data Server Interface, File Management Server CSC, Volume Server CSC, Storage Management Administration CSC.

Data -TRMM Data Types

Test Support Required

N/A

Test Input

Inputs to this test include storage of each data type for the Release A time frame. Data, at a minimum includes:

- EOS instrument data and metadata
- simulated EOS instrument data and metadata
- non-EOS data
- calibration data and metadata
- algorithm package data and metadata
- inventory characteristic data and metadata
- validated inventory data
- orbit/attitude data and metadata
- production history data and metadata
- production plan data and metadata
- QA statistics and metadata
- spacecraft historical data and metadata
- correlative data and metadata
- V0 migration data and metadata

Invalid Insert Requests are submitted to include requests with incorrect fields to include: request identifier, date of request, priority, data type identifier, and original identifier.

Expected Test Outputs

Outputs to this test include entries into the Archive Activity Log.

Success Criteria

This test is deemed successful if all data insert requests are validated correctly and recorded in the Archive Activity Log. For valid insert requests data is inserted into the archive. For invalid insert requests, data is not archived. All data requests (invalid and valid) are logged.

4.4.1.3 Test Case 3: Metadata Storage Test (TS016.003)

Test Case Description

This test demonstrates the ability to store metadata. Insertion requests are made for metadata to include the following: specific metadata items, granule id, data and time of storage, physical storage location, data check sums, and data format type. Metadata items for science data include references to: calibration data, orbit/attitude data, instrument engineering data, delivered algorithm packages, data generation software, production history data, data receptionist, data production facility, QA statistics, reference documentation, and on-demand product generation. Insertion requests are received and the metadata is validated. If validation is successful, the metadata is inserted into the inventory. If validation fails, the metadata is rejected. Upon insertion, the inventory log is updated to record the following information: time/date of update, unique data identifier, archive media name, source of data, storage device name, and requester.

Test Configuration

Hardware - Workstation, Working Storage, Data Repository, Permanent Archive.

Software - Data Server Interface, File Management Server CSC, Volume Server CSC, Database Server CSC, Storage Management Administration CSC.

Data - metadata

Test Support Required

N/A

Test Input

Inputs to this test include storage of each metadata type for the Release A time frame. Valid and Invalid Insert Requests are submitted.

Expected Test Outputs

Outputs to this test include insertion of metadata into the inventory. The inventory log is updated.

Success Criteria

This test is deemed successful if all data insert requests are validated correctly. For valid insert requests data is inserted into the inventory. The inventory log is examined to verify all entries are recorded. Metadata is examined to verify correct contents. For invalid insert requests, data is not placed in the inventory.

4.4.1.4 Test Case 4: Document Storage Test (TS016.004)

Test Case Description

This test demonstrates the ability to store documents. Documents and metadata are received for storage. Once in storage the metadata entries are modified, individually and by group. Document storage includes:

- processing algorithm documentation
- earth science data product documentation
- references to science data quality assessment results
- bibliography information of published and unpublished literature
- data set format and media option descriptions
- instrument specifications
- data set observation log summaries
- user supplied documents in HTML and ASCII
- data set subsetting, subsampling, and transformation option descriptions
- guide data from V0 in HTML and ASCII

Test Configuration

Hardware - Workstation, Working Storage, Data Repository, Permanent Archive.

Software -

Data - N/A

Test Support Required

ingest driver

Test Input

Inputs to this test include requests from ingest for storage of documents, data and metadata. Add, delete, and update modifications are performed for metadata entries.

Expected Test Outputs

Outputs to this test include storage of all documents, data, and metadata received.

Success Criteria

This test is deemed successful if all documents, data, and metadata submitted for storage are successfully received and stored. Metadata entries are accessed and modified. Successful modification to the metadata entries is verified by comparing the metadata entries before modification and after modification.

4.4.2 Distribution Thread (TS017)

This thread demonstrates the ability to distribute data products and associated metadata on various media or electronically via the network. As data requests are accepted and validated, data is retrieved from the archive and prepared for distribution according to instructions given in the data request. Data is distributed, according to instructions establishing a distribution destination given in the distribution request. Packaging materials are generated if the data is to be distributed on media.

4.4.2.1 Test Case 1: Electronic Distribution Check Test. (TS017.001)

Test Case Description:

This test demonstrates the ability to check fields of distribution requests. This includes the checking of all fields in the request. Validation includes checking that the distribution request includes the following fields: originator, method, destination, unique identifiers. When a distribution request fails validation the Distribution Activity Log is updated to include: user identification, request identifier, date and time, and explanation of the failure.

Test Configuration

Hardware - Distribution Management, Working Storage, Data Repository.

Software - Data Distribution Manager CSC.

Data - Various TRMM data sets.

Test Support Required

N/A

Test Input

Inputs to this test include electronic distribution requests. Valid and invalid requests are submitted.

Expected Test Outputs

Outputs to this test include: status messages and Distribution Activity Log entries.

Success Criteria

This test is deemed successful if correct status messages are displayed and the data has been checked, for each distribution request submitted. Status messages appropriately indicate distribution as valid or invalid. A message indicating distribution as invalid, includes the reason why. If the data distribution request is deemed valid, the data is distributed successfully.

4.4.2.2 Test Case 2: Physical Media Distribution Check Test (TS017.002)

Test Case Description:

This test demonstrates the ability to verify distribution requests for physical media. This includes checking of all fields including the following fields: originator, physical media class, shipping destination, data list. If invalid, a distribution failure message is logged.

Test Configuration

Hardware - Distribution Management, Working Storage, Data Repository.

Software - Media Handling Software CSC.

Data - Various TRMM and V0 data sets.

Test Support Required

N/A

Test Input

Inputs to this test include physical media distribution requests. Some of these requests will be valid and some will be invalid.

Expected Test Outputs

Outputs to this test include status messages and Distribution Request Log entries.

Success Criteria

This test is deemed successful if correct status messages are displayed and the data has been checked, for each distribution request submitted. Status messages appropriately indicate distribution as valid or invalid. A message indicating distribution as invalid, includes the reason why. If the data distribution request is deemed valid, the data is distributed successfully.

4.4.2.3 Test Case 3: Distribution Queuing Order Test (TS017.003)

Test Case Description:

This test demonstrates the ability to correctly place distribution requests on a queue that contains all distribution requests waiting to be processed. The distribution request is placed on the queue based on the request type and the priority level.

Test Configuration

Hardware - Distribution Management, Working Storage, Data Repository.

Software - Data Distribution Manager CSC.

Data - Various TRMM data sets.

Test Support Required

X-Runner Tool

Test Input

Inputs to this test include distribution requests of various priority waiting to be processed.

Expected Test Outputs

Outputs to this test include displays of the distribution queue.

Success Criteria

The processing of the queue is monitored. This test is deemed successful if the queue is first in first out. Or when certain data requests have priority monitoring of the queue will show processing of the higher priority data requests prior to processing of requests with lower priority.

4.4.2.4 Test Case 4: "PULL" Data to Specified Destination Test (TS017.004)

Test Case Description:

This test demonstrates the ability to distribute data to a specified destination. Data is copied to a designated common system location so the user can copy (or "PULL" the data) to the user workspace. There is a time limit in which data is available in the "pull" area. After the time limit has expired the data is deleted. Several distribution requests are submitted. The receipt of distribution requests are logged in a distribution activity log. A list of the distribution requests is displayed. The list is requested to display the distribution requests by identifier and status. Certain distribution requests are canceled before the start of data transmission. Status request are entered. The status request responses indicate the state of the request as: pending, staging, transferring, or not found. The number of data items distributed and destination are logged.

Test Configuration

Hardware - Distribution Management, Working Storage, Data Repository.

Software - Data Distribution Manager, Media Handling software, Data Distribution Administration Application.

Data - Various TRMM Data.

Test Input

Inputs to this test include electronic distribution requests for data to be placed in a predefined area. Some requests are canceled. Some requests are deleted due to time expiration.

Expected Test Outputs

Outputs to this test include status messages and retrieved data placed in the designated area. The distribution log is updated.

Success Criteria

This test is deemed successful if the status message is displayed and the data has been placed to the correct destination. Status messages appropriately indicate a successful transfer of data, cancellation of data, or deletion of data. The user is successful in transferring the data to the user's work space. The distribution log is examined to verify the following information: user identifier, data destination, and distribution size.

4.4.2.5 Test Case 5: "PUSH" Data to Specified Destination Test (TS017.005)

Test Case Description:

This test demonstrates the ability to "Push" data to a specified destination. An electronic distribution request is submitted for data to be placed in an indicated directory. The data is copied to the user disk location specified by the requester. Several distribution requests are submitted. The receipt of distribution requests are logged in a distribution activity log. A list of the distribution requests is displayed. The list is requested to display the distribution requests by identifier and status. Certain distribution requests are canceled before the start of data transmission. Status request are entered. The status request responses indicate the state of the request as: pending, staging, transferring, or not found. The number of data items distributed and destination is logged.

Test Configuration

Hardware - Distribution Management, Working Storage, Data Repository.

Software - Data Distribution Manager, Media Handling software, Data Distribution Administration Application.

Data - Various TRMM Data.

Test Support Required

N/A

Test Input

Inputs to this test include electronic distribution requests, and Distribution Log entries.

Expected Test Outputs

Outputs to this test include status messages data distributed to the designated location. The distribution log is updated.

Success Criteria

This test is deemed successful if the correct status messages are displayed and the data has been transferred to the correct destination. The distribution log is examined to verify the following information: user identifier, data destination, and distribution size.

4.4.2.6 Test Case 6: Media Distribution Test (TS017.006)

Test Case Description:

This test demonstrates the ability to transfer data to physical media. The receipt of distribution requests are logged in a distribution activity log. The data requested is transferred to media and a shipping label, the contents list, and the media label is generated. A distribution list is displayed, showing all active distribution requests. The following information is recorded in a log: type of physical media created, number of physical media created, media destination, data items distributed, and media cost. Status of the physical media distribution is logged as pending, active, waiting for shipment or shipped. Error testing includes restart of distribution when media failures occur. In the event of a media failure, distribution automatically restarts on a new piece of media.

Test Configuration

Hardware - Distribution Management, Working Storage, Data Repository, Printer. CD ROM, Diskette, 8mm Tapes, 4mm Tapes.

Software - Data Distribution Manager, Media Handling software, Data Distribution Administration Application.

Data - Various TRMM Data.

Test Support Required

N/A

Test Input

Inputs to this test include physical media distribution requests and Distribution Log entries. Requests are made to display the a distribution request list.

Expected Test Outputs

Outputs to this test include status messages, log entries and data distributed to physical media. Shipping labels, the contents list, and media labels are generated.

Success Criteria

This test is deemed successful if the correct status messages are displayed and the data is successfully transferred to media. A distribution list is displayed. Shipping labels, the contents list, and media labels are correct. The distribution log is examined to verify the following information: type of physical media created, number of physical media created, media destination, and data items distributed, user identifier, media identifier, media specification, and distribution size. Error testing for media failure, successfully completes the data transfer to a new piece of media.

4.4.2.7 Test Case 7: Distribution Device State Test (TS017.007)

Test Case Description:

This test demonstrates the ability to change the state of a peripheral device (on-line Vs off-line) used in media distribution. The state of the peripheral device is displayed. Commands are entered to changed the device state. The state of the device is displayed again to confirm the state change.

Test Configuration

Hardware - Distribution Management, Working Storage, Data Repository, Printer. CD ROM, Diskette, 8mm Tapes, 4mm Tapes.

Software - Data Distribution Manager, Media Handling software, Data Distribution Administration Application.

Data - Various TRMM Data.

Test Support Required

N/A

Test Input

Inputs to this test include commands to change the state of a distribution peripheral device. Requests are made to display the device states.

Expected Test Outputs

Outputs to this test include displays which show the device states.

Success Criteria

This test is deemed successful if all commands to change device states are successfully implemented. Devices states are displayed. The displays are examined to verify the states are correct according to the commands submitted.

4.4.2.8 Test Case 8: Distribution Transmission Error Test (TS017.008)

Test Case Description:

This test demonstrates the capability to detect and log all electronic transmission problems encountered during electronic data distribution. Data distribution problems are entered into a log and notification is displayed on screen. The problems entered into a log are displayed according to type of distribution, time period, request identification or data type. The log is sorted by electronic distribution type (push/pull) and physical media type (tape). Distribution activity reports are generated. If the distribution is an electronic "push" distribution, an operator defined number of attempts is made before aborting the transmission. These additional attempts are logged.

Test Configuration

Hardware - Distribution Management, Working Storage, Data Repository, Data server, Data Storage media and devices .

Software - Data Distribution Manager, Media Handling software, Data Distribution Administration Application.

Data - Various TRMM data.

Test Support Required

N/A

Test Input

Media and electronic distribution requests.

Expected Test Outputs

Outputs to this test include status messages and log entries.

Success Criteria

Data distribution errors are displayed and recorded in a log. The log is displayed according to selected parameters. Data distribution reports are generated.

4.4.3 Schema Generation Thread (TS018)

This thread demonstrates the ability to define all the data types and data services managed by the Data Server. Each data type is defined in a schema. The data base administrator modifies, deletes, displays and saves specific data server schema and configurations.

4.4.3.1 Test Case 1: View Schema Test (TS018.001)

This test demonstrates the capability to define all data types and services in a data schema. Accounts are established, allowing access to view the schema. Schema representations for all server data objects are displayed. Differing views of the schema are displayed. Schema information includes: data type structure, data type service, and data type attribute data values.

Test Configuration

Hardware - workstation, file servers, DBMS based repository

Software - Schema Generation CSC.

Data - N/A

Test Support Required

Accounts are established allowing access to the schema.

Test Input

Commands are entered for viewing any or all of the schema.

Expected Test Outputs

The schema is displayed. Each data type has representation in the schema.

Success Criteria

The schema is displayed according to the view requested . The schema is inspected for representation of all data types. Schema information includes data type structure, data type service, and data type attribute data values.

4.4.3.2 Test Case 2: Data Schema Operations Test (TS018.002)

This test demonstrates the capability to access the data schema to perform administration and maintenance activities. Accounts are established, allowing access to manipulate the schema. Schema administration activities include the ability to create a new data type schemata, update existing schemata information, and delete an existing data type schemata. Schema information includes: data type structure, data type service, and data type attribute data values.

Test Configuration

Hardware - workstation, file servers, DBMS based repository

Software - Schema Generation CSC.

Data - N/A

Test Support Required

Accounts are established allowing access to manipulate the schema and data type schema information.

Test Input

Commands are entered to view the schemata. Files are generated which contain inputs for creating, updating, and deleting schemata. Updating the schemata structure includes updates to existing schema structure information, service information, and valid values information.

Expected Test Outputs

A schema representation for data server objects is displayed. Schemata objects are added to the data server's schema set for schemata generation.

Success Criteria

Access is allowed for viewing and manipulating the data type schemata and data type schemata information. The data schemata representations before modifications are generated and compared to representations after the schema are modified to confirm the successful creation, update and deletion of schemata and schemata information.

4.4.4 Archive Administration Thread (TS019)

This thread demonstrates that the operations staff has the capability to perform administrative functions on the data server configuration. Capabilities include the monitoring of storage devices and the ability to change storage device configuration. Administration utilities include full on-line and incremental backup of data server data, automatic and manual data recovery, and data import and export services.

4.4.4.1 Test Case 1: Manual Media Access Test (TS019.001)

Test Case Description

This test demonstrates the ability to manually access archive media resident in the storage devices. This includes the functionality to mount/dismount and insert/remove media from storage devices. Storage operations are displayed/viewed. Archive media resident storage device information is displayed before and after media access. This information includes: archive volume name, creation time/date, and archive volume status.

Test Configuration

Hardware - Workstation, Working Storage, Data Repository, Storage Data Server, Permanent Archive, Media and media devises.

Software - Data Server Interface, File Management Server CSC, Volume Server CSC, Database Server CSC, Storage Management Administration CSC.

Data - N/A.

Test Support Required

N/A

Test Input

Inputs to this test include commands to mount/dismount and insert and remove media from storage devices. Commands are also submitted to change the allocation of storage devices to data servers. Storage device information is requested.

Expected Test Outputs

Storage device information is displayed.

Success Criteria

Archive media and storage device configuration is correctly altered according to access requests submitted. Storage operations are displayed/viewed. Storage device information is displayed and correctly shows the status of the media and devices according to the access requests submitted. The storage device displays include the following information: archive volume name, creation time/date, and archive volume status.

4.4.4.2 Test Case 2: Automatic Media Access Test (TS019.002)

Test Case Description

This test demonstrates the ability to automatically request media operations to be performed for the following:

- request that new archive media be loaded to store data, if no media exits with sufficient space for the data
- automatic dismount of archive media when different media is needed to store data
- automatic dismount of archive media when different media is needed to retrieve data

A mechanism is provided to remove archive media from storage devices to allow insertion of new or different archive media in the storage device.

Test Configuration

Hardware - Workstation, Working Storage, Data Repository, Permanent Archive, Media and media devises.

Software - Data Server Interface, File Management Server CSC, Volume Server CSC, Database Server CSC, Storage Management Administration CSC.

Data - N/A.

Test Support Required

N/A

Test Input

Attempts are made to store data to exceed the existing available storage space. Requests are made to retrieve data from storage media which is not available (mounted).

Expected Test Outputs

Outputs to this test include automatic requests to load and dismount media.

Success Criteria

Requests are made to load media when no media exits with sufficient space for new data. Automatic dismount is performed when different media is needed to store/retrieve data. Media is successfully removed and new media is successfully loaded.

4.4.4.3 Test Case 3: Uncorrectable Error Media Test (TS019.003)

Test Case Description

This test demonstrates the ability to detect and take corrective action when an uncorrectable error occurs during archive and retrieval operations. An uncorrectable error is detected during archive or retrieval operations. A notification of the error is displayed and a different piece of media is automatically selected and the operation is completed. The media with the uncorrectable error is

re-created using new media. A notification to discard the original media containing the error is displayed

Test Configuration

Hardware - Workstation, Working Storage, Data Repository, Permanent Archive, Media and media devises.

Software - Data Server Interface, File Management Server CSC, Volume Server CSC, Database Server CSC, Storage Management Administration CSC.

Data - N/A.

Test Support Required

N/A

Test Input

Archive and retrieval operations are initiated for media containing uncorrectable errors.

Expected Test Outputs

Outputs to this test include displays to screen indicating detection of uncorrectable errors. New media is automatically selected to complete archive and retrieval operations. The media containing the uncorrectable error is recreated on new media.

Success Criteria

All uncorrectable errors are detected during archive and retrieval operations. The contents of the media containing uncorrectable errors is successfully recreated on new media. Correct notification is displayed to screen, indicating all uncorrectable errors encountered.

4.4.4.4 Test Case 4: Storage Device and File Directory Test (TS019.004)

Test Case Description

This test demonstrates the ability to use a hierarchy of disk and/or tape storage devices and storage media to store/retrieve data. This includes maintaining all archive data files. Maintenance includes the ability to do the following activities: create files, open files, read files, write to files, close files, append files, display files, delete files, update files, backup files, and recover files listed in the file directory. Information concerning files on staging devices is displayed. This information includes: file name, size, type, organization, creation date, protections, owner, last access time and id of last access. File directory information is viewed, displayed and printed.

Test Configuration

Hardware - Workstation, Working Storage, Data Repository, Permanent Archive, Media and media devises.

Software - Data Server Interface, File Management Server CSC, Volume Server CSC, Database Server CSC, Storage Management Administration CSC.

Data - N/A.

Test Support Required

N/A

Test Input

Inputs to this test include commands to manipulate and display the file directory.

Expected Test Outputs

Outputs to this test include status messages and file manipulation results. The file directory is viewed, displayed and printed.

Success Criteria

All commands entered to manipulate or view the file directory are successfully completed. Appropriate status messages are displayed. File information is displayed and examined for correct content.

4.4.4.5 Test Case 5: Storage with Degraded Mode Test (TS019.005)

Test Case Description

This test demonstrates the ability to continue storage operations under degraded conditions when hardware failures occur. Storage hardware configuration is displayed. A hardware failure is simulated for hardware failures of individual archive storage devices and consoles. Storage operations are initiated. The storage operations complete under a degraded system configuration.

Test Configuration

Hardware - Workstation(s), Working Storage, Data Repository, Permanent Archive, Media and media devises.

Software - Data Server Interface, File Management Server CSC, Volume Server CSC, Database Server CSC, Storage Management Administration CSC.

Data - N/A.

Test Support Required

N/A

Test Inputs

Commands are entered for system status monitoring. System hardware failures are simulated. Storage requests for archive and retrieval operations are submitted.

Test Outputs

System monitoring to confirm the state of the system.

Success Criteria

System status is successfully displayed before and after simulated hardware failures. The system correctly detects and displays system failures. The system successfully performs storage operations, in a degraded mode, after hardware failures are detected.

4.4.4.6 Test Case 6: Storage Recovery Test (TS019.006)

Test Case Description

This test demonstrates the ability to recovery data when hardware failure occurs during archive and retrieval storage operations. A simulated hardware failure occurs during archive or retrieval operations. Notifications of device failures are displayed. Failure notifications include: failed device name, failure code or reason and time of failure. Data loss is detected, and recovery operations are initiated. Backup media is used for data recovery. Information about archive storage devices is displayed. This information includes: current status, current operation, number of operations completed, number of error reported, date and time of last error.

Test Configuration

Hardware - Workstation, Working Storage, Data Repository, Permanent Archive, Media and media devises.

Software - Data Server Interface, File Management Server CSC, Volume Server CSC, Database Server CSC, Storage Management Administration CSC.

Data - N/A.

Test Support Required

N/A

Test Input

Data loss occurs as a result of a simulated hardware failure during storage operations. Recovery operations are initiated.

Expected Test Outputs

Outputs to this test include failure notification and data recovery using backup media. Storage device information is displayed.

Success Criteria

This test is deemed successful if data notification and data recovery operations successfully recovery data loss due to hardware failures during storage operations. Device failure notification and storage device information is successfully displayed and examined for correct content.

4.4.4.7 Test Case 7: Backup Archive Media Test (TS019.007)

Test Case Description

This test demonstrates the ability to backup archive media. Backup includes storage system unique files, including all logs, system files, and storage allocation devices information. This includes preventing unauthorized access to archived data. Once a backup is made, data is retrieved and examined to verify data integrity. Media backup operations are displayed and viewed.

Test Configuration

Hardware - Workstation, Working Storage, Data Repository, Permanent Archive, Media and media devises.

Software - Data Server Interface, File Management Server CSC, Volume Server CSC, Database Server CSC, Storage Management Administration CSC.

Data - N/A.

Test Support Required

N/A

Test Input

Inputs to this test include administrative commands for media backup and data retrieval from the backup media. Commands are entered from an account without sufficient privilege to access the media, and from valid accounts which are granted access to media.

Expected Test Outputs

Outputs to this test include: status messages, Backup Archive Log entries and backup media is generated. Data is retrieved from the media for examination. System storage operations are displayed and viewed.

Success Criteria

The accounts that are granted access to enter backup commands are successfully able to enter commands to perform archive backup and retrieve data from backup media. The accounts with insufficient privilege for media access are not allowed to perform archive backup and data retrieval. Complete and correct status messages are displayed to the console for successful and unsuccessful backups. The Backup Archive Log records all archive backup activity. Examination of the data from the backup media verifies media integrity.

4.4.4.8 Test Case 8: Storage Startup and Storage Device Allocation Test (TS019.008)

Test Case Description

This test demonstrates the ability to startup the storage system and allocate storage devices to data servers. Using a system account with appropriate privileges, commands are entered to

startup the storage system. Storage devise allocation is displayed, viewed and printed. Commands are entered to change the allocation (deallocate) of storage devices to data servers. Again, the allocation of storage devices is displayed, viewed and printed.

Test Configuration

Hardware - Workstation, Working Storage, Data Repository, Permanent Archive, Media and media devises.

Software - Data Server Interface, File Management Server CSC, Volume Server CSC, Database Server CSC, Storage Management Administration CSC.

Data - N/A.

Test Inputs

A series of commands are entered for startup, and to change allocation of storage devices to data servers. Requests are made to display, view and print the storage allocation information.

Test Outputs

Storage allocation displays, views and printed copy.

Success Criteria

The system commands are accepted and successful startup and allocation of storage devices is confirmed by examining displays, views and printed copies. .

4.4.4.9 Test Case 9: Archive Log Processing Test (TS019.009)

Test Case Description

This test demonstrates the ability to view, display, and print the Archive Activity Log and the Intermediate Activity Log This includes the ability to sort, extract, and select Archive Activity Log and Intermediate Activity Log entries for display.

Test Configuration

Hardware - Workstation, Working Storage, Data Repository, Permanent Archive, Media and media devises.

Software - Data Server Interface, File Management Server CSC, Volume Server CSC, Database Server CSC, Storage Management Administration CSC.

Data - N/A.

Test Support Required

N/A

Test Input

Inputs to this test include commands to view, display and print the Archive Activity Log and the Intermediate Archive Activity Log. This includes commands to extract data, sort data and selected data for viewing, displaying and printing.

Expected Test Outputs

Outputs to this test include Archive Activity Log and the Intermediate Archive Activity Log displays, views and print outs.

Success Criteria

Commands are successfully entered, resulting in appropriate views, displays and print outs.

4.4.4.10 Test Case 10: Storage Management Performance Test (TS019.010)

Test Case Description

This test demonstrates the ability for the storage hardware and software to perform to acceptable performance levels. Test are performed to determine storage capacity levels.

Test Configuration

Hardware - Workstation, Working Storage, Data Repository, Permanent Archive, Media and media devises.

Software - Data Server Interface, File Management Server CSC, Volume Server CSC, Database Server CSC, Storage Management Administration CSC.

Data - N/A.

Test Support Required

Various performance measuring tools.

Test Input

Inputs to this test includes data appropriate to support performance testing.

Expected Test Outputs

Outputs to this test include performance measurements.

Success Criteria

Performance meets level4 requirements.

4.4.5 Data Archive and Distribution Build (BS006)

This includes the functionality found in the Product Generation Build, the TRMM Ingest Build, and the Data Storage Management Thread, Schema Thread, Distribution Thread, and Archive

Administration Thread. This build demonstrates the capabilities to ingest TRMM data, archive TRMM data and products from product generation and distribute data.

4.4.5.1 Test Case 1: TRMM Data Insertion Test (BS006.001)

This test demonstrates the ability to properly insert ingested TRMM data and associated metadata into the data archive. Upon successful ingest, data is placed in temporary storage. The data is checked for transmission errors and upon successful validation a message is sent to the source of the ingest confirming data acceptance for ingest. Upon validating the data to confirm it is in proper format for storage, the data is inserted in to the archive. The newly archived data is accounted for in the inventory log. A completion status is sent to the data provider upon successful storage of data and metadata. Data before ingest is compared to archived data. Error testing includes failure to archive data due to: failed validation at the data server, and failed validation for permanent storage. Unsuccessful archive results in error entries made to the appropriate error logs and status messages sent to the data source.

Test Configuration

Hardware - workstation, ingest client, working storage, permanent archive

Software - Ingest CI, SDSRV CI, STMGT CI

Data -TRMM data

Test Support Required

File comparison tools.

Test Input

TRMM data requests, and TRMM data for ingest. At least one of each TRMM data type is ingested and archived. Valid and invalid data is submitted.

Expected Test Outputs

Data status is sent to the data provider indicating data delivery, data ingest, data validation, and completion of data archival for successful data archive. Unsuccessful archive results in data entries to the appropriate error logs and notification of unsuccessful archive is sent to the source. The data inventory is updated.

Success Criteria

Each Data Ingest Request is received and properly validated. Upon validation Data Insertion Requests are generated and data is validated for placement in the archive. All valid data is successfully archived and entered into the inventory. For invalid data, entries are made to the appropriate error logs. Status messages are sent to the data source. Data before ingest and data archived is compared and no significant difference are found.

4.4.5.2 Test Case 2: User Interactive Network Archive Test (BS006.002)

Test Case Description

This test demonstrates the ability for a user to ingest and archive a series of data and document data collections, each containing single or multiple granules of data using an interactive network ingest protocol. Network Ingest Requests and Document Ingest Requests are submitted using the interactive Network Ingest Requests. Data successfully ingested is recorded in the Ingest History Log. Upon successful ingest, data is placed in temporary storage. Upon validating the data to confirm it is in proper format for storage, the data is inserted in to the archive. A completion status is sent to the data provider upon successful storage of data and metadata. Data before ingest is compared to archived data. Error testing includes failure to archive data due to: failed validation at the data server, and failed validation for permanent storage. Unsuccessful archive results in error entries made to the appropriate error logs and status messages sent to the data source.

Test Configuration

Hardware - workstation, ingest client, working storage, permanent archive.

Software - Ingest CI, ADSRV CI, SDSRV CI, DDSRV CI, STMGT CI.

Data - tbd

Test Support Required

N/A

Test Input

Several valid Network Ingest Requests and Document Ingest Requests are submitted. Valid and invalid requests are submitted.

Expected Test Outputs

Valid data files are ingested. The Ingest History Log is updated to include all successful data ingest. The Error Log is updated to reflect unsuccessful archive. Error status messages are sent to the requester.

Success Criteria

All valid ingest requests result in successful ingest. A comparison of the data before ingest and data after ingest, shows no significant differences. The Ingest History Log records all successful data ingest. The Error Log records all failed archive attempts. Data before ingest and archive is compared to data after ingest and archive. There should be no significant difference found.

4.4.5.3 Test Case 3: FOS Data Insertion Test (BS006.003)

FOS data is received and validated. Data Insertion Requests are generated and the data is placed in the archive. Upon successful data storage, the data inventory is updated. Status messages are sent to the data provider.

Test Configuration

Hardware - Workstation, X-Terminal, storage devices

Software - Ingest CI, SDSRV CI, STMGT CI

Data - instrument calibration data and metadata, instrument characterization data and metadata, instrument historical data and metadata.

Test Support Required

Simulated FOS interface, mechanism to monitor ingest and display the inventory, and file comparison tools.

Test Input

Data requests, and instrument data for ingest.

Expected Test Outputs

Appropriate status messages are sent to the data provider and the data inventory is updated.

Success Criteria

Each Data Ingest Request is received and properly validated. Upon validation Data Insertion Requests are generated and data is validated for placement in the archive. All data is successfully archived and entered into the inventory. Status messages are sent to the data source. Data before ingest and data archived is compared and no significant difference are found.

4.4.5.4 Test Case 4: ECS Product Data Insertion Test (BS006.004)

This thread demonstrates the capability for the Data Server to accept requests for data insertion of data products from product processing. This includes requests for insertion of data from Processing, Algorithm I&T, and Planning. A data ingest request is accepted for L0 processing. The data is ingested and processed by PDPS. Upon generation of the data product the data is inserted into the archive for storage. The data is received, data type checking is performed, and then the data is placed into storage. The inventory is updated to include the data after successful insertion.

Test Configuration

Hardware - Workstation, X-Terminal, Planning Server, storage devices

Software - Ingest CI, SDSRV CI, STMGT CI, Planning CI, Processing CI

Data - production history data and metadata, production plans and metadata, QA statistics and metadata, scientific calibration data and metadata

Test Support Required

Mechanism to monitor ingest and display the inventory, and file comparison tools.

Test Input

Data requests, product data.

Expected Test Outputs

Appropriate status messages are sent to the data provider and the data inventory is updated.

Success Criteria

Each Data Ingest Request is received and properly validated. Upon validation Data Insertion Requests are generated and data is validated for placement in the archive. All data is successfully archived and entered into the inventory. Status messages are sent to the data source. Data before ingest and data archived is compared and no significant difference are found.

4.4.5.5 Test Case 5: Manual QA of Standard Products (BS006.005)

Test Case Description

This test case verifies the capability to perform manual QA of a Standard product at the DAAC. Manual QA is initiated by a registered Data Server subscription from the QAM (Quality Assurance Monitor), at the DAAC, to receive the output product to be examined. The subscription is accepted and the QAM is given access to the data. The product metadata is updated with the quality assurance codes to indicate that manual QA has completed successfully (and thus maintains a QA history within the metadata). This metadata is stored by the Data server. Should the standard product fail QA, product metadata is updated to reflect that status, and the QAM aborts or suspends processing of the PGE based on the directives in the QA policies and procedures manual.

Test Configuration

Hardware - terminal, workstation

Software - ASDRV CI, PGE's, PRONG CI, PLANG CI

Data - Standard Data products

Test Support Required

SDP toolkit, QA policies and procedures manual

Test Input

Standard Data Products

Expected Test Outputs

QA metadata attributes, Status logs, reports

Success Criteria

For each Standard Data product submitted to this test, QA metadata attributes (codes) will be added to the product metadata according to specifications set forth in the QA policies and procedures manual. Status logs and reports will be updated.

4.4.5.6 Test Case 6: Product Generation and Archive Test (BS006.006)

This test demonstrates the ability to properly process and archive ingested data. A request is received for ingest of TRMM data. The data ingest request is validated and the data is pulled from an external location. The data include ancillary and L0 data. Upon successful validation for transmission errors, a message is sent to the source confirming data transfer and acceptance. Ancillary preprocessing is performed as necessary. A plan is generated and executed for data processing. Upon completion of processing the data is inserted into the archive for storage. The data inventory log is updated to account for the newly inserted data. A message is sent to the data provider, confirming successful data storage.

Test Configuration

Hardware - Workstation, X-Terminal, Planning Server, storage devices

Software - Ingest CI, SDSRV CI, STMGT CI, SDP Toolkit, Planning CI, Processing CI

Data - TRMM ancillary data, TRMM L0 data products, science algorithm.

Test Support Required

Mechanism to monitor ingest and processing, display the inventory, and data analysis tools.

Test Input

Data ingest request which requires processing.

Expected Test Outputs

Appropriate status messages are sent to the data provider and the data inventory is updated. Entries are made to the Processing Log and the inventory upon successful production and archiving of data products.

Success Criteria

Each Data Ingest Request is received and properly validated. A Processing Plan is generated and successfully executed. The Processing Log accounts all activities during processing of the data processing request. Processing-specific and QA-specific metadata are successfully created. Generated data product and its metadata are sent to Data Server and archived. The inventory is updated to reflect the archived data. The data product generated is analyzed to determine if the data product was successfully generated.

4.4.5.7 Test Case 7: Delivery and Receipt of Science Software Delivery Test (BS006.007)

Test Case Description

This test case verifies the ability to receive a science software delivery from the SCF. The Science Software (Algorithm) delivery comes from the SCF via the Ingest Subsystem, to the DAAC Data Server. AI & T personnel, listed in an approved access control list, register a subscription with the Data Server to be notified when a new science software delivery is

received. Upon receipt of the delivery, a transfer request is made to the Data Server to copy all of the delivery files to their work area (which can be hardcopy media or electronic media). A Notification of successful receipt is transferred back to the SCF and the Data Server marks the science software delivery for deletion at a pre-established time-out period.

Test Configuration

Hardware - workstation, terminal

Software - tcp/ip, ftp, SDSRV CI, INGST CI

Data - Science Software Delivery

Test Support Required

n/a

Test Input

Data Server subscription (for notification of new science Software delivery), Transfer request

Expected Test Outputs

Successfully transferred Science Software delivery, Time-out metadata attributes, Receipt notification.

Success Criteria

For each science software delivery availability notice submitted to this test, a transfer request is issued to the Data Server for transfer of the Science Software Delivery files to a work area. Receipt Notification is generated and the Data Server stores the files until a pre-established time-out period is reached.

4.5 Client Services Tests

The following subsections include the threads and builds identified to support testing of the User Registration, Advertising Service, Data Dictionary, Desktop and Scientist Workbench. This Build will also include regression testing of the integrated V0 client software. For each thread and/or build a brief description is given identifying the functionality to be tested. Following each description, test cases are identified. These test cases verify segment capability allocated to the thread or build. The threads and builds are:

- User Registration Thread
- Advertising Service Thread
- Data Dictionary Thread
- EOSView Thread
- Desktop Thread
- Client Services Build

4.5.1 Release A User Registration Thread (TS020)

This thread demonstrates the capability to allow users to logon and become known to the ECS system. Registration includes obtaining and maintaining user configuration information and user supplied or default information. Modification of a user's profile (i.e., user names, password, privileges, account information) based on pre-defined ESDIS provided information is also demonstrated in this thread.

4.5.1.1 Test Case 1: User Validation Test (TS020.001)

Test Case Description

This test case demonstrates the capability to provide users a capability to login. The users will be provided with initial system access procedures. The workbench will send Login Authorization Request to CSMS. The workbench should deny the user system access based on the User Validation Status returned from CSMS. To log on to ECS a user enters a valid user name and password.

Test Configuration

Hardware - workstation

Software - User Registration Tool, SMC

Data - SMC database

Test Support Required

X-runner Tool, Clearcase

Test Input

Inputs to this test include valid and invalid user log on requests.

Expected Test Outputs

Outputs include information returned from the client allowing or denying the user access based on the validation information.

Success Criteria

This test cases is deemed successful if each valid log on attempt results in a successful log on and an invalid log on produces a failure.

4.5.1.2 Test Case 2: User Profile Change Test (TS020.002)

Test Case Description

This test demonstrates the capability for registered user to view and modify their User Profile, account priorities, and authorized user services. The Users will have the capability to modify their User Profile information. The user will have the capability to request User Profile information.

Test Configuration

Hardware - Workstation

Software - User Registration Tool, V0 IMS Client

Data - User Profile Data

Test Support Required

X-runner Tool

Test Input

Registration form has valid and invalid registration information.

Expected Test Outputs

The user profile should be displayed when requested by the user. The user chooses the profile information that will be modified. The user is also provided with the proper data that should be entered into the field. Invalid forms should not be processed.

Success Criteria

This test is successful if the user profile is displayed and if the user is able to modify the user profile information.

4.5.1.3 Test Case 3: Invalid Registration Test (TS020.003)

Test Case Description

This test case verifies that error messages are generate during the registration process as a result of entering invalid registration information. A registration process is required to use the full capabilities of ECS. Unregistered users access to ECS is limited.

Test Configuration

Hardware - workstation

Software - User Registration Tool

Data - N/A

Test Support Required

X-runner Tool, Clearcase

Test Input

Registration form has invalid registration information.

Expected Test Outputs

An error message is generated each time invalid information is entered into each field on the registration form. The user is also provided with proper data that should be entered into the field. Invalid forms cannot be submitted for processing.

Success Criteria

This test is deemed successful when improper inputs are detected and the user is prompted for the correct form.

4.5.1.4 Test Case 4: Valid Registration Test (TS020.004)

Test Case Description

This test case demonstrates the capability of registered users to successfully register as a ECS user. The client shall provide a User Registration Request to CSMS to create a new ECS user account. The client will provide the users their user priorities and authorized user services. The client will provide registered users access to ECS services based on their account priorities and authorized user services. The client provides an interface by which a new user can complete an account application which is forwarded to the SMC.

Test Configuration

Hardware - workstation

Software - User Registration Tool, SMC

Data - SMC database

Test Support Required

X-runner Tool

Test Input

Test input includes account application being completed and submitted to the SMC.

Expected Test Output

Output includes completed account application submitted to the SMC. The SMC will supply the priority information and authorized user services. Successful downloading of scientist workbench on the user workstation will occur.

Success Criteria

This test is considered successful if the registration process is completed and SMC provides the necessary access attributes to use ECS. The user is able to bring up scientist workbench and obtain access to the ECS system.

4.5.1.5 Test Case 5: Unregistered User Access Test (TS020.005)

Test Case Description

This test case demonstrates the capability for unregistered users access to ECS services as authorized by the SMC. The client provides an interface by which unregistered users can access a limited version of ECS services.

Test Configuration

Hardware - workstation

Software -User Registration Tool

Data - N/A

Test Support Required

X-runner Tool

Test Input

Test input includes unregistered user accessing authorized portions of ECS.

Expected Test Output

Output includes user scientist workbench operating after user has went through the access process.

Success Criteria

This test is considered successful if the user is able to successfully bring up scientist workbench and obtain access to the ECS system.

4.5.2 Advertising Service Thread (TS021)

This thread demonstrates the ability to provide an interactive user interface for advertising services and provide representation of the services on the user screen. This includes supplying descriptions and information of EOSDIS science data sets and services to users. The functions demonstrated include the ability to activate the advertising interface, perform searches to find a service, and review results of the advertising searches. Once a service is found, that service may be installed on a Science Workbench.

The ability of authorized users to add, delete or modify advertising data and service listings will also be tested. Advertisements will be added, deleted and modified using an authorized user account. The changes made by an authorized user will be verified by logging out and logging back in as an authorized user and as a typical user. Attempts will be made to modify advertising data and service listings using a non-authorized user account. Non-authorized users should not be able to modify the listings.

4.5.2.1 Test Case 1: Data and Service Offerings Test (TS021.001)

Test Case Description

This test demonstrates the ability of the advertising client to search, browse, and retrieve data and service descriptions. The test will demonstrate the Advertising Services capability to access Advertisements for ECS and non-ECS data and services. The client will provide the capability for displaying Advertisements for data and services provided by non-ECS systems with which ECS is interoperable. The client will access Advertisements via hyperlink mechanism in support of browsing Advertisements and linking to data Dictionary definitions of terms. This will be accomplished by performing searches and browsing through available advertisement listings. The test demonstrates that the clients will have the capability of binding to the advertisement which can be used to issue Service Requests to the selected service or use the reference to the service in a Universal Reference. All of the available data and service descriptions will be accessed and compared with the expected data and service descriptions.

Test Configuration

Hardware - Workstation, Advertising DBMS Server

Software - CSMS CSS, AdvDBMSServer, AdvWAISServer, AdvhttpServer

Data - Advertising Service Database

Test Support Required

XRunner

Test Input

Advertising Service queries for available ECS/non-ECS data and service offerings

Expected Test Outputs

Descriptions of the selected data and service offerings

Success Criteria

This test is considered successful if the Advertising Service is able to provide the requested data and service descriptions. Access to the data and services must be provided when requested by the user.

4.5.2.2 Test Case 2: Invalid Request of Data and Service Offerings Test (TS021.002)

Test Case Description

This test demonstrates the ability of the advertising client to display appropriate, clear error messages when invalid data is entered. The invalid entries will be used to attempt to search, and retrieve data and service descriptions.

Test Configuration

Hardware - workstation, Advertising DBMS Server

Software - CSMS CSS, AdvDBMSServer, AdvWAISServer, AdvhttpServer

Data - ADSRV Database

Test Support Required

None

Test Input

Invalid Advertising Service queries for available ECS/non-ECS data and service offerings

Expected Test Outputs

Appropriate error messages

Success Criteria

This test is considered successful if the Advertising Service is able to return appropriate error messages. Data or service request that can not be found (i.e., non-existent data) by the Advertising Service must return a clear and concise error message explaining the problem.

4.5.2.3 Test Case 3: Advertising Service Subscriptions Test (TS021.003)

Test Case Description

This test demonstrates the ability of the Advertising Client to allow users to subscribe to changes in advertisements. The client will support interactive information management capabilities for users to add a subscription. The client will also support interactive management capabilities for users to cancel a subscription, obtain a current subscription notification, and update a subscription. The client will provide attributes of the identified Subscription(s) in the format specified by the output specifications, e.g., as text documents(s), hyperlink documents(s) or a set of data records. Several subscription request will be submitted for existing advertisements. The advertisements will then be updated. The test will verify that each time a change occurs in an advertisement a notice is sent to the subscriber (user) notifying the user of the update.

Test Configuration

Hardware - workstation, Advertising DBMS Server

Software - CSMS CSS, AdvDBMSServer, AdvWAISServer, AdvhttpServer

Data - Advertising Service Database

Test Support Required

None

Test Input

Advertising Service Subscription information

Expected Test Outputs

User updates to subscribed advertising services that are changed.

Success Criteria

This test is considered successful if the user is properly notified when changes are made to subscribed advertising services. Appropriate error messages must also be generated for incorrect entries made by users when subscribing to a particular service.

4.5.2.4 Test Case 4: Defining Service Classes Test (TS021.004)

Test Case Description

Service classes must be defined in the Advertising Service before services of that type can be advertised. This test case demonstrates the ability to add, delete, and update service classes. Service classes will be created by an authorized user account. The services will then be added to the Advertising Service. An attempt will be made to add services which have no service class definition. The test will also verify that non-authorized users can not add, delete or update service classes.

Test Configuration

Hardware - workstation, Advertising DBMS Server

Software - AdvDBMSApplServer, AdvDBMSServer

Data - Advertising Service Database

Test Support Required

None

Test Input

Advertising Service class definitions

Expected Test Outputs

Updated Advertising Service Class definitions and appropriate error messages

Success Criteria

This test is considered successful if the Advertising Service allows authorized users to add, update or delete service class definitions. Once the service type is defined the Advertising Service must allow the services to be added to the Advertising Service listings. Appropriate error messages must be displayed when an attempt is made to add a service without a corresponding service class definition. Error messages must also be displayed when a user, without appropriate, privileges attempts to add, delete, or modify a service class definition.

4.5.2.5 Test Case 5: Administrative Utilities - Performance Test (TS021.005)

Test Case Description

This test demonstrates the ability of authorized users to access the Advertising Service performance administrative utilities. These utilities are accessed by authorized users only and include:

- Performance monitoring of system CPU, memory, disk, and I/O;
- Performance monitoring of database query processing;
- Performance tuning;

The accuracy and effectiveness of the performance monitoring and tuning utilities will be verified by comparing the results with results obtained by test tools available at the time of testing. These tools will include XRunner and LoadRunner.

Test Configuration

Hardware - workstation, Advertising DBMS Server

Software - AdvDBMSApplServer, AdvDBMSServer

Data - Advertising Service Database

Test Support Required

XRunner, LoadRunner

Test Input

Advertising Service search criteria

Expected Test Outputs

Performance Statistics

Success Criteria

The performance measured during the execution of this test will be recorded and compared with the performance results obtained from LoadRunner and other UNIX performance monitoring tools available at the time of test execution. This test will be considered successful if the performance obtained from the Administrative Performance Utilities is identical to the statistics reported by the test tools.

4.5.2.6 Test Case 6: Administrative Utilities - Access Control Test (TS021.006)

Test Case Description

This test demonstrates the ability of authorized personnel to use the Access Control administrative utilities. These utilities are accessed by authorized users only and are used to establish and maintain user access privileges. Various user accounts will be established with different access privileges. Each user account will be used to access allowable and restricted

operations. These operations include all of the Administrative Utilities as well as the Interactive Information Management capabilities. The Interactive Information Management capabilities include the ability to add, delete, modify, and update Advertising Service information. The Advertising Service log will be checked after each operation is performed to verify the log maintains information on all update activity. The Advertising Service should not allow users to perform operations for which the user is not authorized.

Test Configuration

Hardware - workstation, Advertising DBMS Server

Software - AdvDBMSApplServer, AdvDBMSServer,

Data - Advertising Service Database

Test Support Required

N/A

Test Input

Changes to the access control facilities

Expected Test Outputs

Changes to user privileges, appropriate error messages and access to authorized operations

Success Criteria

This test is considered successful if the Advertising Service allows authorized users to perform the restricted operations. Non-authorized users must not be capable of accessing the restricted operations. An error message, stating access to the restricted operation is denied, should appear on the users screen each time a non-authorized user attempts to perform a restricted operation. The Advertising Service log must also maintain an accurate log of all information update activity.

4.5.2.7 Test Case 7: Administrative Utilities - Backup and Recovery Test (TS021.007)

Test Case Description

This test demonstrates the ability of authorized users to perform backup and recovery activities. These utilities are accessed by authorized users only and include:

- On-line full backup and restoration of advertising service data;
- On-line incremental backup and restoration of advertising service data;
- Manual recovery of advertising service data from media and system failures;
- Automatic recovery of advertising service data from system failures;

A set of Advertising Service operations will be performed before the backup utilities are executed. These operations will include executing several data/service searches and browsing through the available advertisements. The results of these operations will be recorded. Full and incremental backup of the advertising service data will then be performed by an authorized user. The backup data will then be restored on the host system and the search and browse operations previously performed will be re-executed. The results will then be compared.

Automatic recovery of the advertising service data will be tested by simulating a system failure. The method used to simulate a system failure is TBD. The system will be restored after a TBD period of time. When the system is restored and the automatic recovery is completed the search and browse operations previously performed will be re-executed. The results will be compared.

Test Configuration

Hardware - workstation, Advertising DBMS Server

Software - AdvDBMSApplServer, AdvDBMSServer

Data - Advertising Service Database

Test Support Required

XRunner, UNIX dif utility, Hughes Technical Support Company (HTSC) personnel maybe required to aid in creating the simulated fault condition.

Test Input

Advertising Service queries and backup/recovery commands

Expected Test Output

Fully restored Advertising Service Database after recovery

Success Criteria

This test is considered successful if the results from the search and browse operations performed before and after the backup and system failure are identical. Also, performing a UNIX dif command on the original and restored flat files should show no difference.

4.5.2.8 Test Case 8: Administrative Utilities - Import and Export Test (TS021.008)

Test Case Description

This test demonstrates the ability of the Advertising Service to support a data administration utility for data import and data export. The export utility will be used to export Advertising Service data to a file. The file will be modified using a text editor and then imported into the Advertising Service application. When the imported file is accessed through the Advertising Service, the modified information should be displayed.

Test Configuration

Hardware - workstation, Advertising DBMS Server

Software - AdvDBMSApplServer, AdvDBMSServer

Data - Advertising Service Database

Test Support Required

N/A

Test Input

Advertising Service Import/Export commands, Import/Export files

Expected Test Outputs

Modified Advertising Service service listings

Success Criteria

This test is considered successful if the Advertising Service allows authorized users to import and export files. The files will be compared to verify the updated file is imported into the Advertising Service.

4.5.2.9 Test Case 9: Unintended Interruption (TS021.009)

Test Case Description

This test demonstrates the ability of the Advertising Service to support the unintended interruption of database administration and maintenance activities and their restart without loss of information. The client will provide a GUI interface with self-explanatory, meaningful error messages A system error will be simulated while an authorized user is performing an administrative or maintenance tasks. These tasks include, but are not limited to, Advertising Service information updates, adding/deleting user accounts, performing system backup, and adding/deleting advertising service classes. When the system is completely restored the data will be compared to the initial data (i.e., before the error was introduced).

Test Configuration

Hardware - workstation, Advertising DBMS Server

Software - AdvDBMSApplServer, AdvDBMSServer

Data - Advertising Service Database

Test Support Required

XRunner, Hughes Technical Support Company (HTSC) personnel maybe required to assist in creating the simulated fault condition.

Test Input

Advertising Service Commands

Expected Test Outputs

Restored Advertising Service Database

Success Criteria

This test is considered successful if the Advertising Service can be restarted after the system error and restored without the loss of data. A comparison between the Advertising Service databases and files immediately before the system error and after the restart must show no difference.

4.5.2.10 Test Case 10: Performance Test (TS021.010)

Test Case Description

This test demonstrates the ability of the Advertising Service to perform within the timing and storage requirements as specified in the Level 4 requirements. Specifically, this test will verify that the Advertising Service:

- performs a single keyword attribute directory search not to exceed TBD seconds;
- performs an attributes search with a time range check of not exceeding TBD seconds;
- performs a multiple keyword attributes directory search with a spatial range check of not exceeding TBD seconds;

Each of the timing criteria stated above will be verified by performing the specified search and timing the results. The searches will be repeated with various search parameters. System test tools such as XRunner will be used to capture the time it takes to perform the indicated searches. LoadRunner will also be used to simulate multiple users performing multiple searches at the same time. When the search results are returned the information will be validated for the search criteria used.

The storage criteria will be verified by TBD.

Test Configuration

Hardware - workstation, Advertising DBMS Server

Software - AdvDBMSApplServer, AdvDBMSServer, AdvWAISServer

Data - Advertising Service Database

Test Support Required

XRunner, LoadRunner

Test Input

Advertising Service search criteria

Expected Test Outputs

Performance Statistics

Success Criteria

This test is considered successful if the Advertising Service meets the performance timing and storage requirements found in the level 4 requirements. The performance criteria must be met during periods of low system utilization and high system utilization.

4.5.3 Data Dictionary Thread (TS022)

The Data Dictionary thread verifies the capability to provide access to ECS definitions, detailed descriptions of data types, attributes, operations, key words and terms. Each data object, data element, data relationship, and access operation available via all ECS data servers are defined and described in the dictionary databases. Using a menu interface, queries are submitted to the data dictionary where the request is processed and results are returned for display. Administration utilities are provided for access control and modification of the data dictionary schema.

4.5.3.1 Test Case 1: Data Dictionary Queries Test (TS022.001)

Test Case Description

This test demonstrates the ability of the ECS Data Dictionary to process queries. The tester will submit several queries to the Data Dictionary, using the data dictionary user interface, to retrieve information on select data product attributes, operations, terms, and list of valids. The test case will be repeated using the attributes, operations, terms and valids from various available data products.

Test Configuration

Hardware - workstation, Data Dictionary DBMS Server

Software - Data Dictionary Server, Data Dictionary DBMS, Data Dictionary Tool

Data - Data Dictionary Database

Test Support Required

None

Test Input

Valid Data Dictionary entries

Expected Test Outputs

Definitions and descriptions of the requested data product attributes, operations, terms and valids.

Success Criteria

This test is considered successful if the Data Dictionary retrieves the correct definitions and descriptions of the data product attributes operations, terms and valids. The tester will also verify that for each data dictionary query, the query is expressed in a TBD standard query language.

4.5.3.2 Test Case 2: Data Dictionary Error Processing Test (TS022.002)

Test Case Description

This test demonstrates the ability of the ECS Data Dictionary to process invalid queries. The tester will submit several invalid queries to the Data Dictionary as well as invalid attributes, operations and valids. The test case will be repeated using invalid attributes, operations, and valids from different data products.

Test Configuration

Hardware - workstation, Data Dictionary DBMS Server

Software - Data Dictionary Server, Data Dictionary DBMS

Data - Data Dictionary database

Test Support Required

N/A

Test Input

Invalid data dictionary entries

Expected Test Outputs

Clear and concise error messages.

Success Criteria

This test is considered successful if the Data Dictionary returns an error message for each of the invalid entries. The tester will also verify that for each data dictionary query the query is expressed in a TBD standard query language.

4.5.3.3 Test Case 3: Management Services Test (TS022.003)

Test Case Description

This test demonstrates the ability of the ECS Data Dictionary to provide data management services for ECS data dictionary entries. These services include support for batch information management capabilities to add data dictionary entries, update data dictionary entries, delete data dictionary entries and retrieve data dictionary entries. The client will maintain a log of all update activity to the data dictionary. The client will also maintain consistency between its data dictionary entries and schema information from which they were derived. The tester will log in as an authorized user and make changes to the data dictionary. Changes will consist of adding,

deleting and modifying the data dictionary schema and data dictionary entries. After each change to the data dictionary data base the tester will check the data dictionary log to verify the changes are recorded in the log. The tester will then log in as a user and attempt to read entries in the data dictionary including those entries added, deleted and modified by the authorized user.

Test Configuration

Hardware - workstation, Data Dictionary DBMS Server

Software - Data Dictionary Server, Data Dictionary DBMS

Data - Data Dictionary Database

Test Support Required

N/A

Test Input

Additions/Deletions to the Data Dictionary Database

Expected Test Outputs

Definitions and descriptions of the requested data product attributes, operations, terms and valids.

Success Criteria

This test is considered successful if the Data Dictionary allows the authorized user to make the attempted changes in the data base. The changes must will be verified by logging of and logging back into the system as a user. The Data Dictionary log must also maintain an accurate log of all information update activity. The tester will also verify that for each data dictionary query the query is expressed in a TBD standard query language.

4.5.3.4 Test Case 4: Access Control Test (TS022.004)

Test Case Description

This test demonstrates the ability of authorized personnel to use the Data Dictionary Access Control facilities. These utilities are accessed by authorized users only and are used to establish and maintain user access privileges. Various user accounts will be established with different access privileges. Each user account will be used to access allowable and restricted operations. These operations include the ability to modify the Data Dictionary schema and add, delete, and modify the database. The Data Dictionary log will be checked after each operation is performed to verify the log maintains information on all update activity. The test will verify that users are not allowed to perform unauthorized operations.

Test Configuration

Hardware - workstation, Data Dictionary DBMS Server

Software - Data Dictionary Server, Data Dictionary DBMS

Data - Data Dictionary Database

Test Support Required

N/A

Test Input

Changes to the access control facilities

Expected Test Outputs

Changes to user privileges, appropriate error messages and access to authorized operations

Success Criteria

This test is considered successful if the Data Dictionary allows authorized users to perform the restricted operations. Non-authorized users must not be capable of accessing the restricted operations. An error message, stating access to the restricted operation is denied, should appear on the screen each time a non-authorized user attempts to perform a restricted operation. The Data Dictionary log must also maintain an accurate log of all information update activity.

4.5.3.5 Test Case 5: Backup and Recovery Test (TS022.005)

Test Case Description

This test demonstrates the ability of authorized users to perform backup and recovery activities on the Data Dictionary data base. These utilities are accessed by authorized users only and include:

- On-line full backup of advertising service data;
- On-line incremental backup of advertising service data;
- Manual recovery of advertising service data from media and system failures;
- Automatic recovery of advertising service data from system failures;

Several Data Dictionary operations will be performed before the backup utilities are executed. These modifications will include changing the data base entries and performing several searches for Data Dictionary entries. The results of these operations will be recorded. Full and incremental backup of the Data Dictionary data will then be performed by an authorized user. The backup data will then be restored on the host system and the operations previously performed will be re-executed. The results will then be compared.

Automatic recovery of the Data Dictionary data will be tested by simulating a system failure. The method used to simulate a system failure is TBD. When the system is restored and the automatic

recovery is completed the operations previously performed will be re-executed. The results will be compared.

Test Configuration

Hardware - Dedicated workstation, Data Dictionary DBMS Server

Software - Data Dictionary Server, Data Dictionary DBMS

Data - Data Dictionary Database

Test Support Required

XRunner, Hughes Technical Support Company (HTSC) personnel maybe required to aid in creating the simulated fault condition

Test Input

Data Dictionary queries and backup/recovery commands

Expected Test Output

Fully restored Data Dictionary after recovery

Success Criteria

This test is considered successful if the results from the Data Dictionary queries performed before and after the backup and system failure are identical. Also, performing a UNIX dif command on the original and restored files should show no difference. The Data Dictionary log will be checked to verify the correct entries are recorded.

4.5.3.6 Test Case 6: Import and Export Test (TS022.006)

Test Case Description

This test demonstrates the ability to support a data administration utility for data import and data export. The export utility will be used to export Data Dictionary data to a file. The file will be modified using a text editor and then imported into the Data Dictionary database. When the imported information is accessed through the Data Dictionary, the modified information should be displayed.

Test Configuration

Hardware - workstation, Data Dictionary DBMS Server

Software - Data Dictionary Server, Data Dictionary DBMS

Data - Data Dictionary Database

Test Support Required

Text editor

Test Input

Data Dictionary commands for export and import

Expected Test Outputs

Definitions and descriptions of the requested data product attributes, operations, terms and valids.

Success Criteria

This test is considered successful if the Data Dictionary allows authorized users to import and export files. The files will be compared to verify the updated file is imported into the Data Dictionary.

4.5.3.7 Test Case 7: Unintended Interruption Test (TS022.007)

Test Case Description

This test demonstrates the ability of the Data Dictionary to support the unintended interruption of database administration and maintenance activity. A system error will be simulated while an authorized user is performing an administrative or maintenance tasks. These tasks include, but are not limited to, Data Dictionary information updates, adding/deleting user accounts, and performing system backup. When the system is completely restored the data will be compared to the initial data (i.e., before the error was introduced).

Test Configuration

Hardware - workstation, Data Dictionary DBMS Server

Software - Data Dictionary Server, Data Dictionary DBMS

Data - Data Dictionary Database

Test Support Required

XRunner, Hughes Technical Support Company (HTSC) personnel maybe required to aid in creating the simulated fault condition

Test Input

Data Dictionary queries and backup/recovery commands

Expected Test Outputs

Definitions and descriptions of the requested data product attributes, operations, terms and valids.

Success Criteria

This test is considered successful if the Data Dictionary can be restarted after the system error and restored without the loss of data. A comparison between the Data Dictionary data bases and files immediately before the system error and after the restart must show no difference.

4.5.4 EOSView Thread

The EOSView thread demonstrates the data visualization capabilities available in support of viewing data. EOSView is the data visualization tool kit developed for viewing and verification of the HDF-EOS data files. EOSView capabilities include the ability to display 8-bit and 24 bit raster images, display multidimensional data sets, zooming and panning of displayed images, animation of browse images and the capability to select different color palettes.

4.5.4.1 EOSView Raster Image Display (TS023.001)

Test Case Description

This test demonstrates the ability to display 8 bit and 24 bit raster images using EOSView. Sample images from the DAACs will be used to verify that EOSView displays 8 bit and 24 bit raster images. The client will provide the capability of zooming and panning pseudocolor visualizations of data. The client will also provide the capability of zooming and panning raster images.

Test Configuration

Hardware - workstation

Software - Visualization Tool

Data - selected 8/24 bit raster images as supplied by each DAAC

Test Support Required

N/A

Test Input

Inputs to this test include 8 bit and 24 bit raster images.

Expected Test Outputs

Correct display of the selected image.

Success Criteria

This test is considered successful if the 8 bit and 24 bit image files are properly displayed using EOSView. The zoom features must allow users to magnify the image up to the maximum zoom ratio and return to the default zoom ratio without changing the image. The pan feature must also function properly, allowing users to view specific areas of interest.

4.5.4.2 Test Case 2: EOSView Array Data Display (TS023.002)

Test Case Description

This test demonstrates the ability to display ECS supported visualization data using EOSView. The test will verify that:

- ECS supported visualization data may be displayed as a two-dimensional color scatter plot;
- EOSView provides the ability to display two-dimensional data arrays as a pseudo color image;
- EOSView provides the ability to display multidimensional arrays of data as a series of two dimensional pseudo color images;

The pan and zoom features will also be tested for each image displayed.

Test Configuration

Hardware - workstation

Software - Visualization Tool

Data - selected 2D/3D data sets as supplied by each DAAC

Test Support Required

N/A

Test Input

Inputs to this test include 2D and 3D array data sets.

Expected Test Outputs

Correct display of the selected image.

Success Criteria

This test is considered successful if the 2D and 3D array data sets are properly displayed using EOSView. The zoom features must allow users to magnify the image up to the maximum zoom ratio and return to the default zoom ratio without changing the image. The pan feature must also function properly, allowing users to view specific areas of interest.

4.5.4.3 Test Case 3: EOSView Latitude and Longitude Grid Lines (TS023.003)

Test Case Description

This test demonstrates the ability to optionally display latitude and longitude grid lines in their proper geolocation. The test will verify that :

- users may optionally display lat/long grid lines;
- users may display lat/long pairs as symbols on all visualizations produced by EOSView;

- EOSView provides users lat/long lists for the production of built-in vector overlays as part of the application;
- EOSView displays the lat/long coordinates of the cursor when it is inside an EOS grid array;
- EOSView allows users to position the cursor by entering lat/long values;
- EOSView allows users to position the cursor by entering an image X, Y coordinate;

EOSView will be executed from the UNIX command line. The images will be displayed by selecting them from the EOSView open file option after EOSView has been started. Images will also be displayed by entering the EOSView command at the UNIX prompt followed by the image file name.

Test Configuration

Hardware - workstation

Software - Visualization Tool

Data - selected images as supplied by each DAAC

Test Support Required

N/A

Test Input

Inputs to this test include 8/24 bit raster images and 2D/3D array data sets.

Expected Test Outputs

Correct display of the selected image.

Success Criteria

This test is considered successful if EOSView properly displays the latitude and longitude grid lines, in their correct geolocation, over the displayed image when this option is selected. EOSView must also display the lat/long position of the cursor. In addition, users must be able to position the cursor by specifying the lat/long coordinates or specifying the image X, Y coordinates.

4.5.4.4 Test Case 4: EOSView Color Palette (TS023.004)

Test Case Description

This test demonstrates the ability to choose different color palettes for pseudo color visualizations. Users will have the option of selecting from built in color palettes as well as importing color palettes. This test will demonstrate that EOSView:

- provides users the option to select different color palettes for pseudocolor visualizations;
- provides users the option to import color palettes for use with EOSView visualizations;

Test Configuration

Hardware - workstation

Software - Visualization Tool

Data - HDF files

Test Support Required

N/A

Test Input

Inputs to this test include 8/24 bit raster images, 2D/3D array data sets.

Expected Test Outputs

Correct display of the selected image using various color palettes.

Success Criteria

This test is considered successful if EOSView properly displays the selected images using the various color palette options supplied with EOSView.

4.5.4.5 Test Case 5: EOSView Animation (TS023.005)

Test Case Description

This test demonstrates the ability of EOSView to display a series of visualizations as an animation. The client will provide the capability to produce an animation of a browse movie loop.

Test Configuration

Hardware - workstation

Software - Visualization Tool

Data - selected animation files as supplied by each DAAC

Test Support Required

N/A

Test Input

Inputs to this test include animation files

Expected Test Outputs

Correct display of the selected animation files

Success Criteria

This test is considered successful if EOSView properly displays the selected animation files using the available playback options.

4.5.5 Desktop Thread (TS024)

The Desktop thread verifies the capability of the client to provide a desktop environment. The desktop environment includes:

- User and client files (called desktop objects, each with a representative icon);
- Pop-up menu for access to specific client applications;
- Specific operations defined for desktop objects (including drag and drop, double click to open, copy, delete and rename;
- Desktop Manager which manages the desktop objects.

Each of the items above will be tested. In addition the tests will include creating and deleting files and directories, starting desktop applications using double click and execute commands, executing context sensitive help, and viewing files and file attributes.

4.5.5.1 Test Case 1: User Files and Directories (TS024.001)

Test Case Description

This test demonstrates the ability of the Desktop to provide users the ability to create, open, close, and move files and directories. The tester will logon to the Scientist Workbench as an ECS user. A successful login will cause the desktop environment to be displayed on the screen. The tester will then perform the following:

- create a new directory
- open a new directory
- copy files/icons into the new directory
- execute application icons from the new directory
- delete some of the files in the new directory
- create a second new directory
- drag and drop the first directory created onto the second directory
- rename the first directory
- delete several files
- drag and drop files and icons from the first directory to the root directory

- remove the two created directories

Test Configuration

Hardware - workstation

Software - Desktop Manager

Data - N/A

Test Support Required

None

Test Input

Interactive - create, open, copy, execute, delete, rename files, icons, and directories

Expected Test Outputs

Manipulation of files, icons and directories as specified

Success Criteria

This test is considered successful if the specified files, icons and directories are correctly acted on by the specified operations.

Successful operations for files include: open, close, copy, rename, delete, drag and drop.

Successful operations for directories include: create, open, close, rename, delete, drag and drop.

Successful operations for application icons include: execute, delete, copy, drag and drop

Successful operations for data icons include: open, close, copy, rename, delete, drag and drop

Error or warning messages must be displayed if a user attempts to perform an inappropriate operation on a file, icon, or directory.

4.5.5.2 Test Case 2: Desk Top-GUI Support Test (TS024.002)

Test Case Description

This test demonstrates the ability of the ECS Client to provide users with a Graphical User Interface (GUI). The tester will logon to the ECS system and display the Science Workbench. The default settings will be noted by the tester. The user will have the capability to change the default icon size and the spacing of icons. The client will provide a GUI interface with a multiple window display, buttons and pull down menus. The user will have the capability to move the cursor randomly through the screen. The client will provide the users the capability to resize windows. The users will also have the capability to select different default screen font sizes. The tester will then change the default settings to customize the desk top. The tester will also open and re-size the workbench windows and change the default settings for icons.

Test Configuration

Hardware - workstation

Software - Desktop Manager, User Preferences Tool

Data - Default Desktop settings

Test Support Required

N/A

Test Input

Changes to Desktop settings

Expected Test Outputs

Customized user settings for the Desktop

Success Criteria

This test is considered successful if each time the tester logs in as a new user, the same screen attributes (color, fonts) are used. When the user changes the default settings these settings, when saved, must replace the default settings. Each time the tester logs in to the Workbench, the screen attributes set by the user must be implemented instead of the original default settings. Workbench windows and icons must also be re-sizable.

4.5.6 Client Services Build (BS007)

This build tests the integrated V0 client with the ECS desktop environment. The tests will verify that the integrated client provides access to the V0 DAACs, uses the Data Dictionary to process the valids lists and performs user registration for V0 and ECS. The tests will also demonstrate that the client displays V0 browse images using the appropriate viewer (EOSView or the V0 browser). The Advertising Service will be accessed through the desktop environment to list and retrieve advertisements.

4.5.6.1 Test Case 1: V0 Document Search (BS007.001)

Test Case Description

This test demonstrates the ability of the client to allow users to perform V0 document searches. The tester will logon to the Scientist Workbench as a guest. The tester will then execute a V0 document search. The search criteria will be developed based on V0 user scenarios and will be designed to access the V0 DAACs. Several searches will be performed to demonstrate the clients ability to access documents as well as report error messages. The GUI and the CHUI will be tested.

Test Configuration

Hardware - workstation, Data Dictionary DBMS Server

Software - Desktop Manager, V0 Client, Data Dictionary Server, Data Dictionary DBMS

Data - Global Change Master Directory

Test Support Required

None

Test Input

Search scenario based on V0 GCMD data

Expected Test Outputs

Document list from GCMD that meet the search criteria

Success Criteria

This test is considered successful if each document search returns documents meeting the search criteria. The client must provide informational messages to users indicating a query is being executed. The Data Dictionary must provide the correct valids lists. The client must also allow the user to perform other desktop environment tasks while the search is being performed. These tasks include manipulating files and directories, and executing desktop applications such as EOSView and the Advertising Service.

4.5.6.2 Test Case 2: V0 Directory Search (BS007.002)

Test Case Description

This test demonstrates the ability of the client to allow users to perform V0 directory searches. The tester will logon to the Scientist Workbench and register as a V0 user using the Registration Tool. The tester will then execute a V0 directory search. The search criteria will be developed based on V0 user scenarios and will be designed to access the V0 DAACs. Several searches will be performed to demonstrate the clients ability to access the V0 data as well as report error messages. The GUI and the CHUI will be tested.

Test Configuration

Hardware - workstation, Data Dictionary DBMS Server

Software - Desktop Manager, Registration Tool, V0 Client, Data Dictionary Server, Data Dictionary DBMS

Data - V0 directory search data

Test Support Required

None

Test Input

Search scenario based on V0 directory data

Expected Test Outputs

Summary information on data sets that meet the search criteria

Success Criteria

This test is considered successful if each directory search returns summary information on data sets meeting the search criteria. The client must provide informational messages to users indicating a query is being executed. The Data Dictionary must provide the correct valids lists. The client must also allow the user to perform other desktop environment tasks while the search is being performed. These tasks include manipulating files and directories, and executing desktop applications such as EOSView and the Advertising Service.

4.5.6.3 Test Case 3: V0 Inventory Search (BS007.003)

Test Case Description

This test demonstrates the ability of the client to allow users to perform V0 inventory searches. The tester will logon to the Scientist Workbench and register using the Registration Tool. The tester will then execute a V0 inventory search. The search criteria will be developed based on V0 user scenarios and will be designed to access the V0 DAACs. Several searches will be performed to demonstrate the clients ability to access inventory data as well as report error messages. The GUI and the CHUI will be tested.

Test Configuration

Hardware - workstation, Data Dictionary DBMS Server

Software - Desktop Manager, Registration Tool, V0 Client, Data Dictionary Server, Data Dictionary DBMS

Data - V0 Inventory Data

Test Support Required

None

Test Input

Search scenario based on V0 Inventory data

Expected Test Outputs

Information on specific granules of a data set meeting the search criteria.

Success Criteria

This test is considered successful if each inventory search returns information on specific granules meeting the search criteria. The client must provide informational messages to users

indicating a query is being executed. The Data Dictionary must provide the correct valids lists. The client must also allow the user to perform other desktop environment tasks while the search is being performed. These tasks include manipulating files and directories, and executing desktop applications such as EOSView and the Advertising Service.

4.5.6.4 Test Case 4: V0 Browse Image Display (BS007.004)

Test Case Description

This test demonstrates the ability of the client to allow users to perform V0 inventory searches, display a coverage if available, display detailed information on granules, and retrieve and display the granule browse images. The tester will logon to the Scientist Workbench and execute a V0 inventory search. The search criteria will be developed based on V0 user scenarios and will be designed to access the V0 DAACs. When the search results are returned the tester will select several granules which contain detailed information, coverage map and browse images. The tester will then display the detailed information, coverage map and browse images for the selected granules. Several searches will be performed to demonstrate the clients ability to access the granule information as well as report error messages. The GUI and the CHUI will be tested.

Test Configuration

Hardware - workstation, Data Dictionary DBMS Server

Software - Desktop Manager, V0 Client, Data Dictionary Server, Data Dictionary DBMS

Data - V0 Inventory data

Test Support Required

None

Test Input

Search scenario based on V0 Inventory data

Expected Test Outputs

Detailed information, coverage map and browse image for selected granules.

Success Criteria

This test is considered successful if the available detailed information, coverage map and browse image is displayed on the screen for the selected granules when requested.. The client must provide informational messages to users indicating a query is being executed. The Data Dictionary must provide the correct valids lists. The client must also allow the user to perform other desktop environment tasks while the search is being performed. These tasks include manipulating files and directories, and executing desktop applications such as EOSView and the Advertising Service.

4.5.6.5 Test Case 5: V0 Product Order (BS007.005)

Test Case Description

This test demonstrates the ability of the client to allow users to place V0 product orders. The tester will logon to the Scientist Workbench and execute a V0 inventory search. The search criteria will be developed based on V0 user scenarios and will be designed to access the V0 DAACs. When the inventory results are returned the tester will select and order several granules. Several searches will be performed to demonstrate the client allows users to order granules. messages. The GUI and the CHUI will be tested.

Test Configuration

Hardware - workstation, Data Dictionary DBMS Server

Software - Desktop Manager, V0 Client, Data Dictionary Server, Data Dictionary DBMS

Data - V0 Inventory Data

Test Support Required

None

Test Input

Search scenario based on V0 Inventory data

Expected Test Outputs

Confirmation that the product order was successfully processed.

Success Criteria

This test is considered successful if the product request is successfully processed. This is indicated by a confirmation message from the DAAC in which the product was ordered. The client must provide informational messages to users indicating a query is being executed. The Data Dictionary must provide the correct valids lists. The client must also allow the user to perform other desktop environment tasks while the search is being performed. These tasks include manipulating files and directories, and executing desktop applications such as EOSView and the Advertising Service.

4.5.6.6 Test Case 6: Advertising Service (BS007.006)

Test Case Description

This test demonstrates the ability of the client to provide access to advertisements and provide the capability to install advertising service icons on the user's desktop. The tester will logon to the Scientist Workbench and execute the Advertising Service client. The tester will then search the advertising database by performing text search and by traversing the advertising service hyperlinks. Several of the services found will be installed on the Scientist Workbench by selecting the service icons and dragging them onto the workbench. The advertising service will then be closed. The advertised service icons will then be selected directly from the workbench.

Test Configuration

Hardware - workstation, Advertising DBMS Server

Software - Desktop Manager, AdvDBMSApplServer, AdvDBMSServer, AdvWAISServer, AdvhttpServer

Data - Advertising Service Database

Test Support Required

None

Test Input

Searches through the Advertising Service Database

Expected Test Outputs

Installation of Advertising Service icons on the desktop and access to the services through the service icons installed on the desktop.

Success Criteria

This test is considered successful if the Advertising Service icons are successfully installed on the desktop. After terminating the Advertising Service, the installed Advertising Service icons will be selected from the desktop and executed. The selected icons must provide access to the indicated service. The Advertising Service must also successfully perform text search and demonstrate successful operation of the hyperlinks. To verify this a list of all services listed in the Advertising Service database will be obtained before the test is executed. This list will be compared with the results obtained from the text search and the results obtained by traversing the hyperlinks.

4.6 Increment 1 Evolutionary Tests

The following subsections include the threads and builds identified to support testing of the V0 and V1 search capabilities. For each thread and/or build a brief description is given identifying the functionality to be tested. Following each description, test cases are identified. These test cases verify segment capability allocated to the thread or build. The threads and builds are:

- Inventory Search Thread
- Directory Search Thread
- Document Search Thread
- Increment 1 Evolutionary Build

4.6.1 Inventory Search Thread (TS025)

The Inventory Search thread verifies the capability to perform queries of metadata describing granules or aggregations of granules. The Inventory Search provides a uniform set of

descriptions of granules from one or more data sets with information required to select and obtain a subset of those granules. Inventory Search attributes include Sensor/Platform, Time/Date, Location (position), Geographical Zone, Data Quality, Orbit Characteristics, Coincident Surface Data, Instrument Attributes and Geophysical Attributes. The Inventory shall individually describe each granule of EOSDIS data.

4.6.1.1 Test Case 1: Simple Inventory Search Test (TS025.001)

Test Case Description

This test demonstrates the ability of the ECS to allow users to perform simple inventory searches. Search criteria will be developed based on user scenarios and will be designed to access a data server. Several searches will be performed and will be based on the data available in the data server.

Test Configuration

Hardware - workstation, Data Dictionary DBMS Server, Data Management, Access Control and Management , Working Storage, Data Repository, Distribution Management

Software - Data Dictionary Server, Database Management, Data Server Interface, Earth Science Object Class Libraries, Basic Structured Class Libraries, Data Dictionary DBMS, V0 Client, Gateway Server, Gateway DBMS.

Data - Data Sever Inventory Database populated with representative V0 and TRMM inventory Data

Test Support Required

None

Test Input

Search scenario based on available data

Expected Test Outputs

Descriptions of granules meeting the search criteria.

Success Criteria

This test is considered successful if each inventory search returns the granule descriptions of the granules meeting the search criteria. The client must provide informational messages to users indicating a query is being executed. The inventory search must also provide information concerning product processing schedules and processing history.

4.6.1.2 Test Case 2: Complex Inventory Search Test (TS025.002)

Test Case Description

This test demonstrates the ability of ECS to allow users to perform complex inventory searches. Complex searches consist of a minimum of 5 search selection criteria as well as Boolean and

relational operators. The search criteria will be developed based on user scenarios and data server information. The criteria will be designed to search across multiple data sets, if available, for coincident occurrences of data in space, time, and any other attribute(s) of metadata. The search will be executed and the data returned will be compared with the expected results. The GUI and the CHUI will be tested.

Test Configuration

Hardware - workstation, Data Dictionary DBMS Server, Data Management, Access Control and Management , Working Storage, Data Repository, Distribution Management

Software - Data Dictionary Server, Database Management, Data Server Interface, Earth Science Object Class Libraries, Basic Structured Class Libraries, Data Dictionary DBMS, V0 Client, Gateway Server, Gateway DBMS

Data - Data Server Inventory Database populated with representative V0 and TRMM inventory data, V0 DAAC data.

Test Support Required

N/A

Test Input

Search scenarios based on available data.

Expected Test Outputs

Descriptions of granules meeting the search criteria.

Success Criteria

This test is considered successful if each inventory search returns the granule descriptions of the granules meeting the search criteria. The client must provide informational messages to users indicating a query is being executed. Errors obtained while the search is being performed must be reported to the user. The inventory search must also provide information concerning product processing schedules and processing history.

4.6.1.3 Test Case 3: Inventory Search-Dependent Valids Test (TS025.003)

Test Case Description

This test demonstrates the ability of the Client to provide the user with a correct list of inventory search dependent valids. Each query will be developed such that the specific data sets are known in advanced. The tester will verify that only the allowable dependent valids are accessed when the query is formulated. The GUI and the CHUI will be tested.

Test Configuration

Hardware - workstation, Data Dictionary DBMS Server, Data Management, Access Control and Management , Working Storage, Data Repository, Distribution Management

Software - Data Dictionary Server, Database Management, Data Server Interface, Earth Science Object Class Libraries, Basic Structured Class Libraries, Data Dictionary DBMS, V0 Client, Gateway Server, Gateway DBMS

Data - Dependent Valids List

Test Support Required

N/A

Test Input

Search criteria

Expected Test Outputs

Inventory results on data sets that meet the search criteria.

Success Criteria

This test is considered successful if the inventory search displays the correct dependent valids while the query is being developed. The query must also return the correct descriptions of the granules meeting the search criteria.

4.6.2 Directory Search Thread (TS026)

The Directory Search thread demonstrates the ability to provide access to directory information. The directory information consists of a collection of uniform descriptions that summarize the contents of a large number of data sets. The Directory Search uses the Global Change Master Directory (GCMD) as the source of its data. Directory searches are initiated and the results are displayed using a graphical interface.

4.6.2.1 Test Case 1: Simple Directory Search Test (TS026.001)

Test Case Description

This test demonstrates the ability of the Client to provide access to the Global Change Master Directory (GCMD) database. Directory information consist of summary information on available data sets such as data set attributes, platforms, temporal coverage, and geographic coverage. Directory searches will be performed by specifying search criteria such as source, parameter, spatial coverage and temporal coverage. The GUI and the CHUI will be tested.

Test Configuration

Hardware - workstation, Data Dictionary DBMS Server, Data Management, Access Control and Management , Working Storage, Data Repository, Distribution Management

Software - Data Dictionary Server, Database Management, Data Server Interface, Earth Science Object Class Libraries, Basic Structured Class Libraries, Data Dictionary DBMS, V0 Client, Gateway Server, Gateway DBMS.

Data - Global Change Master Directory (GCMD)

Test Support Required

N/A

Test Input

Directory Search criteria

Expected Test Outputs

Summary information on data sets and appropriate error messages

Success Criteria

This test is considered successful if the directory search accesses the GCMD and returns the summary information on data sets that meet the search criteria. The client must also display appropriate error messages for searches that are performed but can not be satisfied.

4.6.2.2 Test Case 2: Directory Search-Dependent Valids Test (TS026.002)

Test Case Description

This test demonstrates the ability of the Client to provide the user with a correct list of directory search dependent valids. Each query will be developed such that the specific data sets are known in advance. The tester will verify that while developing the query the client provides only the valid selectable options: source, platform, parameters, etc. The tester will also verify that the correct information is returned when the search is executed. The GUI and the CHUI will be tested.

Test Configuration

Hardware - workstation, Data Dictionary DBMS Server, Data Management, Access Control and Management , Working Storage, Data Repository, Distribution Management

Software - Data Dictionary Server, Database Management, Data Server Interface, Earth Science Object Class Libraries, Basic Structured Class Libraries, Data Dictionary DBMS, V0 Client, Gateway Server, Gateway DBMS

Data - Dependent Valids, Global Change Master Directory

Test Support Required

N/A

Test Input

Search criteria

Expected Test Outputs

Correct display of valids and summary information on data sets that meet the search criteria.

Success Criteria

This test is considered successful if the directory displays the correct valids and returns information only on the specific data sets requested. The client must also display appropriate error messages for searches that are performed but can not be satisfied.

4.6.3 Document Search Thread (TS027)

The Guide Search thread provides access to guide and other on-line documentation and reference materials about ECS and its data sets. The on-line guide will contain references on information such as:

- Documentation of processing algorithms;
- Results of science data quality assessments;
- Bibliography of published and unpublished literature;
- Product specifications;
- Instrument specifications;
- Inventory search options.

4.6.3.1 Test Case 1: Guide Search Test (TS027.001)

Test Case Description

This test demonstrates the ability of the Client to provide access to guide information. On-line documents will be accessed by browsing through available listings of guide documents and selecting specific documents for review. Documents will also be selected by entering a key word and performing a search on the key word. Several documents will be selected for display by browsing and by searching on key words. The performance of the Document Data Server will be measured by timing each search executed. The GUI and the CHUI will be tested.

Test Configuration

Hardware - workstation, Data Dictionary DBMS Server, Data Management, Access Control and Management , Working Storage, Data Repository, Distribution Management

Software - Data Dictionary Server, Database Management, Data Server Interface, Earth Science Object Class Libraries, Basic Structured Class Libraries, Data Dictionary DBMS, V0 Client, Gateway Server, Gateway DBMS, Document Data Server

Data - On-line Documents

Test Support Required

N/A

Test Input

Document search criteria

Expected Test Outputs

Guide Documents

Success Criteria

This test is considered successful if the specified guide documents are displayed on the screen. The guide documents must be readable and must correspond to the selected browse listing or the keywords used for searching. The client must display appropriate error messages for searches that are performed but can not be satisfied.

4.6.3.2 Test Case 2: Document Access Test (TS027.002)

Test Case Description

This test case demonstrates the ability of the Document Data Server to provide access to all documents and data types held in the servers collection. The tester will identify the documents in the data server collection. This will be performed through consultation with the development team. The tester will then develop and execute a set of search criteria for each of the documents using appropriate search criteria. The GUI and the CHUI will be tested.

Test Configuration

Hardware - workstation, Access Control and Management, Working Storage, Data Repository, Distribution Management

Software - V0 Client, Gateway Server, Gateway DBMS, Document Data Server, Data Server Interface, Earth Science Object Class Libraries, Basic Structured Class Libraries, Database Management

Data - On-Line Documents

Test Support Required

N/A

Test Input

Document search criteria

Expected Test Outputs

Documents

Success Criteria

This test is considered successful if the tester is able to access all of the documents in the document collection. The documents must be readable and must correspond to the selected browse listing or the keywords used for searching. The client must display appropriate error messages for searches that are performed but can not be satisfied.

4.6.3.3 Test Case 3: Guide Updates Test (TS027.003)

Test Case Description

This test demonstrates the ability of the Document Data Server to allow authorized users to provide data management services for the ECS Guide function. A set of document searches will be performed before any modifications are made to the on-line documents. The results of the document searches will be recorded. The tester will then login as an authorized user and begin adding, deleting and modifying the document data server database. Documentation that will be affected include documentation on processing algorithms, references to results of science data quality assessments of EOS data, bibliography information, instrument specifications, summaries of data sets, data describing subsetting, subsampling and transformation options and user supplied documentation. After modifying the data server database, the tester will log off of the system, re-login and execute the searches performed before the changes were made. The tester will verify the changes were made by comparing the results before and after the changes are made.

Test Configuration

Hardware - workstation, Access Control and Management, Working Storage, Data Repository, Distribution Management

Software - Data Dictionary Server, Database Management, Data Server Interface, Earth Science Object Class Libraries, Basic Structured Class Libraries, Data Dictionary DBMS, V0 Client, Gateway Server, Gateway DBMS, Document Data Server

Data - On-line Documents

Test Support Required

N/A

Test Input

Document search criteria

Expected Test Outputs

Guide Documents

Success Criteria

This test is considered successful if the tester is able to add, delete and modify the document server database. After the database is changed, the tester will execute a search for the added, deleted and modified documents. Added documents should be found when the correct search criteria are used. When a search is performed for the Deleted documents a message should be displayed stating the item could not be found. A search performed for the modified documents must result in a display of the document with the changes made.

4.6.4 Increment 1 Evolutionary Build (BS008)

The Increment 1 Evolutionary Build demonstrates the ability of the Client to provide user login, user registration, access to EOSView, a Science Workbench, Advertising Service, Data Dictionary, Inventory, and Guide search capabilities and Local Information Manager search management. Search criteria will be developed to search V0 and ECS data sets.

4.6.4.1 Test Case 1: Advertisement Test (BS008.001)

Test Case Description

This test demonstrates the ability of the Client to provide user access to advertisements. The tester will begin by logging in and registering as a new user. When the Science Workbench is displayed on the screen the tester will execute the Advertising Service. After browsing through the advertisements an advertisement will be selected. The tester will access the Data Dictionary to retrieve more information on the selected advertisement such as definition of terms and valid lists. The tester will also install the advertisement icon on the Science Workbench for future access. The test will be repeated several times with different advertisements.

Test Configuration

Hardware - workstation, Advertising DBMS Server, Data Dictionary DBMS Server

Software - AdvDBMSApplServer, AdvDBMSServer, AdvWAISServer, AdvhttpServer, Data Dictionary Server, Data Dictionary DBMS, Advertising Client Tool, User Registration Tool, Desktop Manager, Data Server Interface.

Data - Advertising Service and Data Dictionary database

Test Support Required

N/A

Test Input

User Registration information, Advertisement selections, Data Dictionary key words

Expected Test Outputs

Advertisement descriptions, access to advertised services, definitions from the data dictionary

Success Criteria

This test is considered successful if the tester is able to successfully login, register, initiate the advertising service, access the data dictionary and install the advertising service icon on the Science Workbench.

4.6.4.2 Test Case 2: Data Server Search Request Test (BS008.002)

Test Case Description

This test demonstrates the ability of the Client to allow users to perform integrated searches using the capabilities of the Advertising Service, Data Dictionary, Directory Search, Document Search and Inventory Search. Several searches will be performed based on the available data in the data server. The search criteria will be detailed and specific to cause the client to access a specific data server. The GUI and the CHUI will be tested. The search will also include retrieving browse products and displaying them using EOSView.

Test Configuration

Hardware - workstation, Advertising DBMS Server, Data Dictionary DBMS Server, Access Control and Management, Working Storage, Data Repository, Distribution Management

Software - V0 Client, AdvDBMSApplServer, AdvDBMSServer, AdvWAISServer, AdvhttpServer, Data Dictionary Server, Data Dictionary DBMS, Advertising Client Tool, User Registration Tool, Desktop Manager, Gateway Server, Gateway DBMS, Science Data Server, Storage Management, Data Distribution, Document Data Server

Data - Data Dictionary, Advertising Service and Data server data bases, Global Change Master Directory (GCMD), Browse Products (HDF files)

Test Support Required

N/A

Test Input

Search criteria

Expected Test Outputs

Advertising Service descriptions, Data Dictionary definitions and descriptions, summary information on data sets, browse products and appropriate error messages

Success Criteria

This test is considered successful if the client provides the requested information from the Advertising Service, Data Dictionary and Data Server. Also, EOSView must display the 8/24 bit browse products in ECS-HDF format. Appropriate error messages must also be displayed if user errors or system errors occur during the execution of this test.

4.6.4.3 Test Case 3: V0/V1 Search Request Test (BS008.003)

Test Case Description

This test demonstrates the ability of the client to allow users to perform integrated searches using the capabilities of the Advertising Service, Data Dictionary, Directory Search, Document Search and Inventory Search. Several searches will be performed based on the available data in the data server. The search criteria will be general to allow the client to search the V0 and V1 data servers. The GUI and the CHUI will be tested. The search will also include retrieving browse products and displaying them using EOSView.

Test Configuration

Hardware - workstation, Advertising DBMS Server, Data Dictionary DBMS Server, Access Control and Management, Working Storage, Data Repository, Distribution Management

Software - V0 Client, AdvDBMSApplServer, AdvDBMSServer, AdvWAISServer, AdvhttpServer, Data Dictionary Server, Data Dictionary DBMS, Advertising Client Tool, User Registration Tool, Earth Science Search Tool, Visualization Tool, Desktop Manager, Gateway Server, Gateway DBMS, Science Data Server, Storage Management, Data Distribution, Document Data Server.

Data - Data Dictionary, Advertising Service and Data server data bases, Global Change Master Directory (GCMD), Browse Products (HDF files)

Test Support Required

N/A

Test Input

Search criteria

Expected Test Outputs

Advertising Service descriptions, Data Dictionary definitions and descriptions, summary information on data sets, inventory metadata, browse products and appropriate error messages

Success Criteria

This test is considered successful if the client provides the requested information from the Advertising Service, Data Dictionary and V0/V1 Data Servers. Also, EOSView must display the 8/24 bit browse products in ECS-HDF format. Appropriate error messages must also be displayed if user errors or system errors occur during the execution of this test.

4.6.4.4 Test Case 4: Advertisement-Subscriptions Test (BS008.004)

Test Case Description

This test demonstrates the ability of the Advertising Service to provide interactive management capabilities for users to add, cancel and update subscriptions. The tester will login to the ECS client and start the Advertising Service. The tester will then identify 15 services and subscribe to them. Five of the subscriptions will be canceled and five of the subscriptions will be updated. The remaining five will not be modified.

Test Configuration

Hardware - workstation, Advertising DBMS Server, Data Dictionary DBMS Server

Software - V0 Client, AdvDBMSApplServer, AdvDBMSServer, AdvWAISServer, AdvhttpServer, Data Dictionary Server, Data Dictionary DBMS, Advertising Client Tool, User Registration Tool, Desktop Manager, Science Data Server, Document Data Server

Data - Advertising Service and Data Dictionary database

Test Support Required

N/A

Test Input

Advertisement subscription commands

Expected Test Outputs

Advertising Service subscription notices

Success Criteria

This test is considered successful if the Advertising Service allows users to subscribe to services, cancel subscriptions and update subscriptions. Error messages must also be displayed when user error or system error occurs.

4.6.4.5 Test Case 5: Desk Top-User Comments Test (BS008.005)

Test Case Description

This test demonstrates the ability of the ECS Client to provide users the capability to enter user comments and submit user comments to the SMC. The test will also demonstrate that users are able to retrieve user comments based on author, subject and date/time. The tester will access the user comments capability from the Science Workbench and enter several comments. After submitting the comments, the tester will retrieve the comments submitted. The GUI and the CHUI will be tested.

Test Configuration

Hardware - workstation

Software - Comment/Survey Tool, Logger/Reviewer Tool, Desktop Manager

Data - N/A

Test Support Required

N/A

Test Input

User comments

Expected Test Outputs

User comments

Success Criteria

This test is considered successful if the ECS client allows users to submit and retrieve user comments. Error messages must also be displayed if user errors or system errors occur.

4.6.4.6 Test Case 6: Desk Top-Access to the EOSDIS Science Network Test (BS008.006)

Test Case Description

This test demonstrates the ability of the ECS Client to provide users access to the EOSDIS Science Network (ESN). The tester will logon to the ECS client and select access to the ESN from the Science Workbench. The tester will access the ESN remote login facilities, the ESN multi-media mail, the ESN Electronic Bulletin Board, and ESN file transfer communication services.

Test Configuration

Hardware - workstation

Software - Desktop Manager, , E-mailer Tool, Logger/Reviewer Tool, Newsreader Tool.

Data - N/A

Test Support Required

Access to the EOSDIS Science Network

Test Input

N/A

Expected Test Outputs

Access to the ESN

Success Criteria

This test is considered successful if the ECS client allows users access to the ESN. Access will include performing remote logins, sending and receiving ESN Multi-Media mail, ESN Electronic Bulletin Board and the file transfer capabilities. Error messages must be displayed when user or system errors occur.

4.6.4.7 Test Case 7: Workbench Data Dictionary Management Services Test (BS008.007)

Test Case Description

This test demonstrates the ability of the ECS Workbench to access the Data Dictionary and provide management services for dictionary entries. The tester will log in as an authorized user and make changes to the data dictionary. Changes will consist of adding, deleting and modifying the data dictionary schema and data dictionary entries. After each change to the data dictionary data base the tester will check the data dictionary log to verify the changes are recorded in the log. The tester will then log in as a user and attempt to read entries in the data dictionary including those entries added, deleted and modified by the authorized user.

Test Configuration

Hardware - workstation, Data Dictionary DBMS Server

Software - Data Dictionary Server, Data Dictionary DBMS, Desktop Manager

Data - Data Dictionary Database

Test Support Required

N/A

Test Input

Additions/Deletions to the Data Dictionary Database

Expected Test Outputs

Descriptions of the requested data product attributes, operations, terms and valids.

Success Criteria

This test is considered successful if the Data Dictionary allows authorized users to access and make changes to the Data Dictionary. The changes will be verified by logging off and logging back into the system as a user. The Data Dictionary log must also maintain an accurate log of all information update activity. The tester will also verify that for each data dictionary query the query is expressed in a TBD standard query language.

4.6.4.8 Test Case 8: Workbench Application Programming Interfaces (BS008.008)

Test Case Description

This test demonstrates the ability of the ECS Workbench to provide application programming interfaces (API). The APIs provide interfaces that support the development of: local user interfaces accessing DAAC-unique metadata searching services, extensions for support of data visualization utilities, extensions for DAAC-specific data analysis utilities.

Test Configuration

Hardware - workstation

Software - Desktop Manager

Data - N/A

Test Support Required

N/A

Test Input

N/A

Expected Test Outputs

N/A

Success Criteria

The tester will review the workbench source code and verify the Release A required APIs are included in the software.

4.7 User Services Tests

The following subsections include the threads and builds identified to support testing of User Services. User Services testing includes the following threads and builds:

- Distribution Services Thread
- Product Processing Request Thread
- Status Request Thread
- Hypertext Help Thread
- User Services Build

4.7.1 Distribution Services Thread (TS028)

This thread provides the client interface for submission of non-processing requests. Data is requested from the ECS archive with the stipulation to process the products in some way for distribution. Services provided by the interface include delivery time estimation, provide users

the capability to specify electronic or off-line distribution of data and distribution of data and distribution criteria verification.

4.7.1.1 Test Case 1: Distribution Criteria Test (TS028.001)

Test Case Description

This test demonstrates the capability of accessing distribution criteria for each data product and data product software and distribution criteria to the requester's data access rights to verify that the data and software can be distributed as requested.

Test Configuration

Hardware - Workstation, X-terminal, Access/Process Coordinators

Software - Product Request Tool, Data Server Interface

Data - Session Management Info, Notification

Test Support Required

X-runner Tool

Test Input

User request distribution of data products and data product software.

Expected Test Outputs

A comparison is done between the requesters' data access rights and the distribution criteria for the data products. If the user have appropriate privileges, the data will be distributed as specified. If not, a status message will be displayed stating the reason for non-distribution.

Success Criteria

This test is deemed successful if the appropriate status message is displayed regarding the access rights of the user and the distribution specification requested by the user for the data products.

4.7.1.2 Test Case 2: Media Distribution Test (TS028.002)

Test Case Description

This test demonstrates the capability to select the physical media distribution either electronic distribution or off-line distribution of data as available from data servers.

Test Configuration

Hardware - Workstation, X-terminal, Access/Process Coordinators

Software - Product Request Tool, Data Server Interface

Data - Session Management Info, Notification

Test Support Required

X-runner Tool

Test Input

Inputs include selecting the type of media for distribution.

Expected Test Outputs

Output includes the information being distributed via the selected media, either electronically or off-line distribution is available.

Success Criteria

This test is deemed successful if the distribution of the data is transmitted via the chosen media.

4.7.1.3 Test Case 3: Product Delivery Time Test (TS028.003)

Test Case Description

This test demonstrates the capability to provide the user an estimate on how long it will take before products are ready for delivery.

Test Configuration

Hardware - Workstation, X-terminal, Access/Process Coordinators

Software - Product Request Tool, Data Server Interface

Data - Selected V0 and TRMM data products, Notification

Test Support Required

X-runner Tool

Test Input

Input includes user requesting data products.

Expected Test Outputs

Output includes an estimate of the amount of time elapsing before the data products requested by the user are delivered to the user.

Success Criteria

This test is deemed successful if an estimate of the time of delivery is displayed to the user, and that the products are actually delivered within the estimated time frame.

4.7.2 Distribution Processing Request Thread (TS029)

This thread provides the client interface for submission of distribution request that requires product processing. Data is requested from the ECS archive with the stipulation to process the products in some way for distribution. Processing services provided by the interface include subsetting, subsampling and formatting. The ability to display distribution status is demonstrated.

4.7.2.1 Test Case 1: Time Notification Test (TS029.001)

Test Case Description

This test case demonstrates the capability to request the status of distribution. Each product order include a general time window for completion, and a request priority. Product orders submitted to ECS include requests for distribution of Standard Products, special data products, EOC historical data, spacecraft housekeeping, ancillary data, documentation, and other data archived in the data server.

Test Configuration

Hardware -Workstation, X-terminal, Access/Process Coordinators

Software - Product Request Tool, Data Server Interface

Data - Notification, Results-set

Test Support Required

X-runner Tool

Test Input

Inputs include request for the status of the distribution.

Expected Test Outputs

Outputs include current status of distribution. If anytime during the processing of an order, it become clear that the order will not be satisfied within the estimated time window, the requester will be notified.

Success Criteria

This test is deemed successful if the status of the distribution request is returned to the user in the allotted time.

4.7.2.2 Test Case 2: Processing of Subsetted, Subsampled and Summary Data Test (TS029.002)

Test Case Description

This test case demonstrates the capability for users to request distribution of subsetted, subsamples, and summary products based on geographical location, spectral band and time.

Test Configuration

Hardware -Workstation, X-terminal, ingest/distribution peripherals

Software - Product Request Tool, Data Server Interface

Data - Results-set

Test Support Required

X-runner Tool

Test Input

Inputs include on demand request for distribution of subsetted, subsamples and summary products.

Expected Test Outputs

Outputs include the subsetted, subsamples and summary products.

Success Criteria

This test is deemed successful if the product is processed correctly and distributed to the user.

4.7.2.3 Test Case 3: Priority Processing Test (TS029.003)

Test Case Description

This test case demonstrates the capability for users to request priority processing of distribution processing requests.

Test Configuration

Hardware -Workstation, X-terminal, Access/Process Coordinators

Software - Product Request Tool, Access/Process Coordinators

Data - Results-set

Test Support Required

X-runner Tool

Test Input

Inputs include initiating the request for the status and placing priority on the requests.

Expected Test Outputs

Outputs include a status message to confirm priority processing of distribution processing requests.

Success Criteria

This test is deemed successful if the status messages to confirm priority processing of on demand processing requests is displayed. This will alter the order in which the products will be processed.

4.7.3 Status Request Thread (TS030)

This thread demonstrates the ability to track client submitted requests. Tracking includes: identifying subordinates tasks to a requests, relating the requests to a session, and tracking resources consumed by or allocated to the request. This thread also demonstrates the capability to send acknowledgment of order and data availability at the time the order is placed, answer user request of status and handle notification of product distribution to users.

4.7.3.1 Test Case 1: Status Request Test (TS030.001)

Test Case Description

This test case demonstrates the capability to retrieve status of a data request. If the user wants to know the status of the data retrieval request, the user would interface with an object on the desktop representing the retrieval. This object will interface with session services to obtain the status information for which the user requested.

Test Configuration

Hardware -Workstation, X-terminal, Access/Process Coordinators

Software - Product Request Tool, Data Server Interface

Data - Session Management Info, Notification

Test Support Required

X-runner Tool, simulated data server

Test Input

Inputs includes the user intimating the request by clicking on the status request object.

Expected Test Outputs

Outputs include information regarding the status of the request.

Success Criteria

This test is deemed successful if the status of the retrieval request is returned to the user.

4.7.3.2 Periodic Delivery Status Requests Tests (TS030.002)

Test Case Description

This test case demonstrates the capability for users to submit requests for periodic delivery of data stored at the data servers and advertised through advertising service.

Test Configuration

Hardware -Workstation, X-terminal, Access/Process Coordinators

Software - Product Request Tool, AdvDBMSApplServer, Data Server Interface

Data - Search Request, Results-set, Search Results

Test Support Required

X-runner Tool, Clearcase

Test Input

Inputs includes the submitting the request for the incessant delivery of data.

Expected Test Outputs

Outputs include the delivered data at intervals as specified by the requests.

Success Criteria

This test is deemed successful when the request for periodic delivery is received and the specified data is transmitted in intervals.

4.7.3.3 Product Distribution Status Test (TS030.003)

Test Case Description

Users, after ordering products, may request status of the distribution of the products. This test illustrates the capability to obtain product distribution status for ECS data products for the product requesters.

Test Configuration

Hardware -Workstation, X-terminal, Access/Process Coordinators

Software - Product Request Tool, Data Server Interface

Data - Results-set, Notification

Test Support Required

X-runner Tool

Test Input

Inputs includes the user initiating the request status of distribution of the products by clicking the corresponding object.

Expected Test Outputs

Outputs include information regarding the status of the request for distribution of the products.

Success Criteria

The user submits the request for the status of distribution. This test is deemed successful if the status of the distribution of products is displayed.

4.7.4 Hypertext Help Thread (TS031)

This thread demonstrate the capability to provide a GUI interface with context-sensitive help or menu driven help. Context-sensitivity allows the user to select high lighted/underlined items with a cursor. After being selected, information pertaining to the item will be displayed. This help is provided on the scientist workbench.

4.7.4.1 Test Case 1: Context Sensitive Help Test (TS031.001)

Test Case Description

This test case demonstrates capability to access context sensitive help functions. User clicks on an accentuated keyword. Help information pertaining to the keyword is displayed.

Test Configuration

Hardware -Workstation, X-terminal

Software -Desktop Manager

Data - Desktop Objects

Test Support Required

X-runner Tool

Test Input

Click on the highlighted word to obtain specific help information about the keyword.

Expected Test Outputs

Appropriate help text about item is displayed.

Success Criteria

This test is considered successful if the appropriate help information is displayed for the selected item.

4.7.4.2 Test Case 2: Menu Driven Help Test (TS031.002)

Test Case Description

This test case demonstrates capability of menu driven help function to find general information. The help option is accessible to the user via the scientist workbench. Operator has an option to print the help information if desired.

Test Configuration

Hardware - Workstation, X-terminal

Software - Desktop Manager

Data - Desktop Object

Test Support Required

X-runner Tool

Test Input

Menu driven help screen. User selects help options for help information.

Expected Test Outputs

Outputs include appropriate information about item is displayed.

Success Criteria

This test is deemed successful if the appropriate help information is displayed for the corresponding help item chosen.

4.7.5 User Services Build (BS009)

This includes the functionality found in the Increment 1 Evolutionary Build and the Data Archive Distribution Build. Included are threads for Distribution Services, Distribution Processing Requests, Status Request and Help functions. This build integrates the user interface for product access with the server capabilities to support the user interface. Using the results from the queries, and after viewing browse products a distribution request is formulated and submitted. The data server receives the distribution request and processes the request. Data is retrieved from the archive and distributed to the source of the request.

4.7.5.1 Test Case 1: Search with Distribution Test (BS009.001)

Test Case Description

This test demonstrates the ability to search for data, then using search results, submit a request for data distribution. In this test the data is in the archive, no processing needs to be done for data distribution. Upon successful registration and obtaining the Desktop, the Advertising Service is invoked to determine which services and data are available and where they are located. A document search is performed, giving information on services. Using the Directory, information

on the availability and location of data sets is obtained. Using the Data Dictionary, which defines data products, queries are generated and submitted. Query results containing a list of data sets, services, providers and summary characteristics are returned. Selected browse products are viewed. From these results data sets are chosen and data distribution requests are submitted. The data is retrieved and distributed.

Test Configuration

Hardware - workstation, x-terminal, storage devices, media

Software - ADSRV CI, DESKTP CI, WKBECH CI, DDICT CI, DDSRV CI, SDSRV CI, STMGT CI, DDIST CI, INGST CI

Data - search data, metadata, V0 data, TRMM data and data products

Test Support Required

X-runner Tool

Test Input

Inputs into this test include registration information, guide search requests, directory search requests, data dictionary search requests, inventory search requests, browse requests and distribution requests.

Expected Outputs

Document search result sets. A list of data products and their scientific definition from the Data Dictionary. Result sets are based on input parameters. A browse product displayed on the Desktop.

Success Criteria

This test is deemed successful if search requests return appropriate search result sets based on input criteria. All data distribution requests submitted are received, validated and successfully distribute data as indicated in the request. Appropriate status messages are sent to the requester.

4.7.5.2 Test Case 2: Search with Distribution Processing Test (BS009.002)

Test Case Description

This test demonstrates the ability to perform data searches and using the results of those searches, request data. In this test the data is first processed (subsampling, subsetting), then distributed. Upon successful registration and obtaining the Desktop, the Advertising Service is invoked to determine which services and data are available and where they are located. A document search is performed, giving information on services. Using the Directory, information on the availability and location of data sets is obtained. Using the Data Dictionary, which defines data products, queries are generated and submitted. Query results containing a list of data sets, services, providers and summary characteristics are returned. A data set is selected and browse data is requested. The browse data is retrieved and displayed. After viewing the browse data, a product request is submitted. The request is processed, and data is distributed to the requester. During the

test, status requests are entered by the requester. The request is validated and if it contains a valid request id status information is returned.

Test Configuration

Hardware - workstation, x-terminal, storage devices, media

Software - ADSRV CI, DESKTP CI, WKBECH CI, DDICT CI, DDSRV CI, SDSRV CI, STMGT CI, DDIST CI, INGST CI , PLANG CI, PRONG CI.

Data - search data, and TRMM data and browse products

Test Support Required

X-runner Tool

Test Input

Inputs into this test include registration information, guide search requests, directory search requests, data dictionary search requests, inventory search (direct to a data server and through the LIM) browse requests and distribution requests.

Expected Outputs

Document search result sets. A list of data products and their scientific definition from the Data Dictionary. A result set based on input parameters. Browse and distribution data products are sent to the requester.

Success Criteria

This test is deemed successful if search requests return appropriate search result sets based on input criteria. All data distribution and browse requests submitted are received, validated and browse and data products are successfully distributed as indicated in the request. Appropriate status messages are sent to the requester.

4.7.5.3 Test Case 3: Product Generation Access Test (BS009.003)

This test demonstrates the ability to properly ingest, process and archive data. Once the data is archived and the inventory is updated to reflect the newly archived data, data search requests are performed to access the product via the Client interface. A data request is received for ingest of data which requires some form of processing prior to data archive and storage. The data ingest request is validated and the data is pulled from an external location. Upon successful validation for transmission errors, a message is sent to the source confirming data transfer and acceptance. A plan is generated and executed for data processing. Upon completion of processing the data is inserted into the archive for storage. The data inventory log is updated to account for the newly inserted data. A message is sent to the data provider, confirming successful data storage. Once the data is archived search requests are performed to access the product.

Test Configuration

Hardware - Workstation, X-Terminal, Planning Server, storage devices

Software - INGST CI, SDSRV CI, STMGT CI, SDP Toolkit, Planning CI, Processing CI, DESKT CI, WKBCH CI, ADSRV CI,

Data - ancillary data, TRMM data products, science algorithm

Test Support Required

Mechanism to monitor ingest and processing, display the inventory, and data analysis tools.

Test Input

Data ingest request which requires processing. Search request to verify newly created data product can be accessed.

Expected Test Outputs

Appropriate status messages are sent to the data provider and the data inventory is updated. Entries are made to the Processing Log and the inventory upon successful production and archiving of data products. Search results to include the newly archived data product.

Success Criteria

Each Data Ingest Request is received and properly validated. A Processing Plan is generated and successfully executed. The Processing Log accounts all activities during processing of the data processing request. Processing-specific and QA-specific metadata are successfully created. Generated data product and its metadata are sent to Data Server and archived. The inventory is updated to reflect the archived data. The data product generated is analyzed to determine if the data product was successfully generated. Search requests are processed and the newly created product is included in the results set.

4.7.5.4 Test Case 4: Data Access Log Test (BS009.004)

Test Case Description

This test demonstrates the ability to log all access activities in a Data Access Log. A series of search requests and distribution requests are submitted via the client interface. As search requests and data retrieval requests are processing, activities are entered into the Data Access Log. Entries in the log are viewed by data type, source of access, or time frame. Entries in the log are sorted by data type, source of access, or time frame.

Test Configuration

Hardware - workstation, x-terminal, storage devices, media

Software - ADSRV CI, DESKTP CI, WKBECH CI, DDICT CI, DDSRV CI, SDSRV CI, STMGT CI, DDIST CI, INGST CI

Data - search data, and data products

Test Support Required

X-runner Tool

Test Input

Inputs into this test include registration information, guide search requests, directory search requests, data dictionary search requests, and distribution requests. Commands are entered to view and sort the Data Access Log.

Expected Outputs

Entries made to the Data Access Log as data and search requests are processed.

Success Criteria

This test is deemed successful if all access activities are recorded in the Data Access Log. The log is viewed and sorted by selected criteria (data type, source of access or time frame).

4.7.5.5 Test Case 5: Data Type Event Subscription Test (BS009.005)

Test Case Description

This test demonstrates the ability to submit a subscription request based on new arrival of a certain data type event, via the client interface. A subscription request is submitted. The subscription indicates the event as the receipt of a data type and the action as one of the following: distribution of data, send notification, collection of data for later distribution, or initiation of a query. Upon receiving the subscription the Data Server validates the subscription as containing an valid event and a valid action. Data which meets the criteria in the subscription is ingested to be archived. The subscription is processed upon successful archiving of the data. The requester is automatically notified when the new data, meeting the criteria given in the subscription, is available. The requester retrieves the data. Since more than one subscription is submitted, the subscriptions are processed on a first-come, first-serve basis. During the test, an account is set up for viewing the stored subscription requests.

Test Configuration

Hardware - workstation, x-terminal, storage devices

Software - Ingest CI, SDSRV CI, ADSRV CI, WRKBCH CI, DESKT CI

Data - various data types are ingested or produced to support new data arrival as indicated in the subscription

Test Support Required

X-runner Tool

Test Input

At least one subscription is submitted for each valid action. Valid subscriptions and invalid subscriptions are submitted.

Expected Test Output

All submitted subscriptions are received. The stored subscriptions are successfully viewed. Subscriptions are processed on a first-come, first-serve basis. As data is archived, subscription notices are sent to the requester. All data is successfully retrieved.

4.7.5.6 Test Case 6: Time Event Subscription Test (BS009.006)

Test Case Description

This test demonstrates the ability to submit a subscription request based on a time event, via the client interface. A series of subscription requests are submitted. Each subscription indicates the event (a time period) and the action as one of the following: distribution of data, send notification, collection of data for later distribution, or initiation of a query. For some subscriptions data is to be retrieved by the requester. For other subscriptions data is transferred to the recipient automatically. Upon receiving a subscription the Data Server validates the subscription as containing an valid event and a valid action. Data which meets the criteria in the subscription is ingested to be archived. The subscription is processed at the time indicated in the subscription. The requester either retrieves the data or the data is sent to the requester. During the test, an account is set up for viewing the stored subscription requests.

Test Configuration

Hardware - workstation, x-terminal, storage devices

Software - Ingest CI, SDSRV CI, ADSRV CI, WRKBCH CI, DESKT CI

Data - various data types are ingested to support new data arrival as indicated in the subscription

Test Support Required

X-runner Tool

Test Input

At least one subscription is submitted for each valid action. Valid subscriptions and invalid subscriptions are submitted.

Expected Test Output

All submitted subscriptions are received. The stored subscriptions are successfully viewed. Data is sent to the requester at the time indicated in the request. All data is successfully transferred to the requester or retrieved by the requester.

4.7.5.7 Test Case 7: Access to Service Test (BS009.007)

Test Case Description

This test demonstrates the ability to restrict access to data and services. After registration, attempts are made to access data and services not allowed to the registered account. The

requester is informed that the service requested is not accessible. This test is repeated for all privilege levels.

Test Configuration

Hardware - workstation, x-terminal

Software - DESKTP CI, WKBCH CI, ADSRV CI, SDSRV CI

Data - N/A

Test Support Required

Accounts for all levels of data access.

Test Input

Requests are entered in an attempt to access a service which is denied to the requester. Attempt are made to access various services from requesters registered with various privileges.

Expected Test Output

The requester is informed that access is not allowed.

Success Criteria

All attempts made to access various services are denied if the registered user does not have the proper privileges. The requester is informed for each illegal access attempt.

4.7.5.8 Test Case 8: Access Error Test (BS009.008)

Test Case Description

This test demonstrates the ability to perform error handling for data requests. A series of invalid data search and distribution requests are submitted. Each request contains a content specific error. Content specific errors include: missing files, out of range parameters, and illegal file specification creation. Upon receipt, the file is validated as invalid, resulting in either an error or warning condition. Error messages are generated and sent to the data source. All error and warning conditions are logged. The data service request is canceled.

Test Configuration

Hardware - workstation, x-terminal

Software - DESKTP CI, WKBCH CI, SDSRV CI,

Data - N/A

Test Support Required

N/A

Test Input

At least one data request for each type of error or warning condition possible.

Expected Test Output

Updates to a log for all error and warning conditions. Error or warning messages are sent to the data source.

Success Criteria

All request submitted are identified as invalid. All error and warning conditions are logged. Error or warning messages are sent to the data source. The data requests are canceled.

4.8 SDPS Release A Tests

The following subsections include the threads and builds identified to support testing of SDPS Release A. For each thread and/or build a brief description is given identifying functionality to be tested. Following each description, test cases are identified. SDPS Release A testing includes the following threads and builds:

- NOAA Interoperability Thread
- Ancillary 2 Ingest Thread
- SDPS Release A Build

4.8.1 Ancillary 2 Ingest Thread (TS032)

This thread demonstrates the ability to ingest the ancillary data to support engineering and instrument data in the processing of science products. This includes receiving and identifying the ancillary data, and generating metadata.

4.8.1.1 Test Case 1: Ingest of NOAA NMC Data (TS032.001)

Test Case Description

This test case verifies the capability to ingest NOAA NMC GRIB data, NOAA NMC Reynolds Blended SSST data and NOAA NMC BUFR formatted gridded products. NOAA NMC data is required for CERES processing in release A. Data received from NOAA NMC is ingested on a data driven basis. Planning schedules time for data ingestion. At the time designated, the data is accessed and header information is attached. Upon successful receipt of the NOAA data, a data receipt log is updated, associated metadata is inserted in the data server inventory, preliminary QA is performed.

Test Configuration

Hardware - Client Hosts and Working Storage.

Software - Polling Ingest Client Interface CSC.

Data - CERES, MISR, Ancillary Data, NOAA NMC GRIB, NOAA NMC Reynolds Blended SSST and NOAA NMC BUFR data.

Test Support Required

SDP Toolkit

Test Input

Inputs to this test include NOAA NMC data.

Expected Test Outputs

Outputs of this test include Data Receipt Log entries.

Success Criteria

Successful completion of ingest NOAA NMC testing.

4.8.1.2 Test Case 2: Ingest of NOAA NESDIS Data (TS032.002)

Test Case Description

This test case verifies the capability to ingest NOAA NESDIS data. NOAA NESDIS data is required for processing CERES data in Release A. The receipt of data from NOAA NESDIS is based on a data driven ingest process. The data is received at the ECS via the CBI (a TCP/IP socket for electronic ftp transmission), and header information is attached. Upon successful receipt of the NOAA data, a data receipt log is updated, associated metadata is inserted in the data server inventory, preliminary QA is performed.

Test Configuration

Hardware - Client Hosts, Working Storage.

Software - Polling Ingest Client Interface CSC.

Data - NOAA NESDIS data, Ancillary data.

Test Support Required

N/A

Test Input

Inputs of this test case include NOAA NESDIS data.

Expected Test Outputs

Outputs of this test case include: the Data Receipt Log is updated and the DAA is displayed on screen.

Success Criteria

Completed successfully of NOAA NESDIS ingest testing.

4.8.1.3 Test Case 3: Ingest of Non-Standard EOS DAAC Data (TS032.003)

Test Case Description

This test case verifies the capability to ingest non-standard EOS DAAC data. This includes TOMS, SAGE, TMI and VIRS products. Upon successful receipt of the non-standard EOS DAAC data, a data receipt log is updated, associated metadata is inserted in the data server inventory, and preliminary QA is performed.

Test Configuration

Hardware - Client Hosts, Working Storage.

Software - Polling Ingest Client Interface CSC.

Data - CERES, TOMS, SAGE, TMI and VIRS products

Test Support Required

X-Runner and Load Runner Tools.

Test Input

Inputs to this test include ingest of non-standard EOS DAAC data.

Expected Test Outputs

Output of this test include Data Receipt Log.

Success Criteria

Successful completion of ingest non-standard EOS DAAC data. All ingest requests submitted are received and recorded in a Data Receipt Log view.

4.8.2 SDPS Release A Build (BS010)

This build includes all SDPS Release A functionality. It includes functionality from the User Services Build and Ancillary Ingest Threads. It demonstrates end-to-end functionality.

4.8.2.1 Test Case 1: ECS to NOAA Search and Distribution Test (BS010.001)

Test Case Description

This test demonstrates the ability of the ECS Client to interface with NOAA for data information and data access. The ECS Client establishes connectivity to NOAA. Search requests and data distribution requests are submitted. Query results are returned. From these results data sets are chosen and data distribution requests are submitted. The data is retrieved and distributed. In this test no data processing is necessary to fulfill the data requests.

Test Configuration

Hardware - workstation, x-terminal, storage devices, media

Software - ECS Client

Data - NOAA search data, and data products

Test Support Required

X-runner Tool

Test Input

Inputs into this test include data search and distribution requests.

Expected Outputs

Query results and data are transferred to ECS.

Success Criteria

This test is deemed successful if ECS is successful in obtaining connectivity to NOAA. Search requests return appropriate search result sets based on input criteria. All data distribution requests submitted are received, validated and data is successfully distributed as indicated in the request. Appropriate status messages are sent to the ECS.

4.8.2.2 Test Case 2: ECS to NOAA Product Processing Test (BS010.002)

Test Case Description

This test demonstrates the ability of the ECS Client to interface with NOAA for data information and data access. The ECS Client establishes connectivity to the NOAA system. Search requests and data browse requests are submitted by ECS to NOAA. Query results are returned. From these results data sets are chosen and data distribution requests are submitted. The distribution requests require NOAA processing to generate a product. Upon product generation the data is distributed to ECS. Status request are submitted to NOAA from ECS during product generation. Appropriate status messages are returned to ECS.

Test Configuration

Hardware - workstation, x-terminal, storage devices, media

Software - ECS Client

Data - NOAA data

Test Support Required

X-runner Tool

Test Input

Inputs into this test include data search and distribution requests originating at ECS submitted to NOAA.

Expected Outputs

Query results and processed data are transferred to ECS.

Success Criteria

This test is deemed successful if ECS is successful in obtaining connectivity to NOAA. Search requests return appropriate search result sets based on input criteria. All data distribution requests submitted are received, validated and data is successfully distributed as indicated in the request. Appropriate status messages are sent to the ECS.

4.8.2.3 Test Case 3: Ancillary Ingest, Product Generation and Distribution Test (BS010.003)

This test demonstrates the ability to create a data product from ingested L0 and ancillary data, perform QA on the data product, and archive the product. Once the data is archived and the inventory is updated to reflect the newly archived data, data search requests are performed to access the product via the Client interface. A data request is received for ingest and processing of L0 data. The data ingest request is validated and the data is pulled from an external location. Upon successful validation for transmission errors, a message is sent to the source confirming data transfer and acceptance. A plan is generated and executed for data processing. Upon completion of processing the data is inserted into the archive for storage. The data inventory log is updated to account for the newly inserted data. A message is sent to the data provider, confirming successful data storage. Once the data is archived search requests are performed to access the product. The product is accessed using the Advertising Service. Result sets returned from an inventory search include the data product. A distribution request is submitted for retrieval of the product.

Test Configuration

Hardware - Workstation, X-Terminal, Planning Server, storage devices

Software - INGST CI, SDSRV CI, STMGT CI, SDP Toolkit, PLANG CI, PRONG CI, DESKT CI, WKBCH CI, ADSRV CI, DDIST

Data - ancillary data, TRMM and AM-1 L0 data, science algorithms

Test Support Required

Mechanism to monitor ingest and processing, and data analysis tools.

Test Input

Data ingest request which requires L0 processing. Search request to verify that the newly created data product can be accessed. Distribution requests for the newly created product.

Expected Test Outputs

Appropriate status messages are sent to the data provider and the data inventory is updated. Entries are made to the Processing Log and the inventory upon successful production and archiving of data products. Search results to include the newly archived data product. Data is distributed.

Success Criteria

Each Data Ingest Request is received and properly validated. A Processing Plan is generated and successfully executed. The Processing Log accounts all activities during processing of the data processing request. Processing-specific and QA-specific metadata are successfully created. Generated data product and its metadata are sent to Data Server and archived. The inventory is updated to reflect the archived data. The data product generated is analyzed to determine if the data product was successfully generated. Search requests are processed and the newly created product is included in the results set. Data distribution

4.8.2.4 Test Case 4: Multiple User Test (BS010.004)

Test Case Description

This test demonstrates the ability for multiple users to logon to and simultaneously perform data ingest and access activities. Activities include:

- registration
- submission of search requests without data distribution
- submission of search requests with electronic data distribution
- submission of product processing and electronic distribution
- submission of subscriptions
- status checking

- cancellation of specified requests
- data ingest and archive

This test demonstrates the ability of the subsystem to accommodate multiple concurrent processing. A number of orders and queries are initiated at differing times during a specified time interval. These concurrent activities are monitored. The number of users and services will increase until performance requirements can be verified. Then the number of users will be increased further to measure the response of the system under stress conditions.

Test Configuration

Hardware - workstations, x-terminals, storage devices, media

Software - all SDPS CIs

Data - TBD

Test Support Required

X-runner Tool, Load Runner, performance monitoring tools, and data analysis tools

Test Input

A mixed combination of ingest and data orders and searches according to a timed schedule.

Expected Outputs

Query results returned and data is distributed. Status messages are returned to the source. Appropriate log entries are made for ingest, archive, access, and distribution. Performance measurements are recorded.

Success Criteria

All activities complete in a successful manner. Performance data is collected for analysis.

4.9 AM-1 Early Interface Tests

The following subsections include the threads identified to support testing of Early AM-1 interfaces.

4.9.1 AM-1 Ingest Thread (TS033)

This thread demonstrates the ability to interface with EDOS for reception of AM-1 Level 0 data and the physical placement of the data into the site's storage hierarchy. Ingest is via a network file transfer.

4.9.1.1 Test Case 1: EDOS Data Ingest Test (TS033.001)

Test Case Description

This test demonstrates the ability to perform data ingest via the "push" method. This includes "pushing" of data by EDOS to ECS. At the network protocol level, the ftp "put" involves an external site "pushing" data to ECS.

Test Configuration

Hardware - Client Hosts, Working Storage, Data Repository.

Software - Polling Ingest Client Interface CSC.

Data - L0 data.

Test Support Required

X-Runner and Load Runner Tools.

Test Input

Inputs to this test includes EDOS data.

Expected Test Outputs

Outputs to this test include status messages.

Success Criteria

"Push" ingest should be successfully completed.

4.9.1.2 Test Case 2: EDOS Delivery Record Transfer Test (TS033.002)

Test Case Description

This test demonstrates the ability to poll for and transfer a data delivery record. EDOS data arrives at ECS. ECS periodically checks for a data Delivery Record in a location accessible to the ESN. Upon detection, the Delivery Record is transferred to ECS. Using this record the data file is checked. Checking includes validating existence and size of file. A log is updated to record the transfer.

Test Configuration

Hardware - Client Hosts, Working Storage, Data Repository.

Software - Polling Ingest Client Interface CSC.

Data - L0 data.

Test Support Required

N/A

Test Input

Inputs to this test includes EDOS data. A data delivery record.

Expected Test Outputs

Outputs to this test include log entries.

Success Criteria

Data and data delivery record are successfully transferred to ECS. The data files are validated and logged.

4.9.1.3 Test Case 3: EDOS Delivery Record Period Test (TS033.003)

Test Case Description

This test demonstrates the ability to provide authorized operations staff the ability to set the time period between checking for the presence of external Delivery Record files. Authorized and unauthorized users attempt to access the system in order to modify the set time. Authorized users are allowed to modify the time. Unauthorized user are denied access. Appropriate status messages are displayed when unauthorized access is attempted.

Test Configuration

Hardware - Client Hosts, Working Storage, Data Repository.

Software - Polling Ingest Client Interface CSC.

Data - L0 Data.

Test Support Required

X-Runner and Load Runner Tools

Test Input

Inputs to this test includes commands to access the system to modify the time period between checking for the presence of external Delivery Records. Attempts are made by authorized and unauthorized accounts.

Expected Test Outputs

Outputs to this test include status messages.

Success Criteria

The time period is successfully modified by authorized users. Unauthorized attempts result in an error message display.

4.10 Early Landsat Interface Tests

The following subsections include the threads identified to support testing of Early Landsat interfaces.

4.10.1 Landsat Ingest Thread (TS034)

This thread demonstrates the ability to interface with Landsat for reception of Landsat data and the physical placement of the data into the site's storage hierarchy.

4.10.1.1 Test Case 1: Landsat Valid Data Availability Notice Verification Test (TS034.001)

Test Case Description

This test demonstrates the ability for the ECS to receive Data Availability Notices from Landsat and validate the notices for adherence to ECS standards. Data ingest is initiated when the data provider sends a Data Availability Notice (DAN) informing ECS that data is available for ingest. A DAN contains a header, linked to data files. The header contains information about the linked files. The linked data files describe a data product using CCSDS standards. One DAN may describe one data file, or several data files, that are available for ingest. ECS receives and validates the DAN, checking that all required fields are present and that the format of the message is correct and consistent with the standards. After validation of the DAN a DAN Acknowledgment (DAA) message is sent to Landsat.

Test Configuration

Hardware - Working Storage, Client Hosts.

Software - Automated Network Ingest Client Interface CSC.

Data - LOR Data Ingest.

Test Support Required

Landsat interface, mechanism to monitor the receipt of DANs, X-Runner, Load Runner Tools.

Test Input

Inputs to this test include a series of DANs submitted electronically to ECS. This includes DANs with a single detached header linked to a single file and DANs with single detached headers linked to multiple files. Only valid DANs are submitted.

Expected Test Outputs

Outputs to this test include a DAA for each DAN received.

Success Criteria

This test is deemed successful if each DAN submitted is received and validated correctly, and a DAA is sent to Landsat, indicating the DAN as valid.

4.10.1.2 Test Case 2: Landsat Invalid Data Availability Notice Verification Test (TS034.002)

Test Case Description

This test demonstrates the ability to recognize Data Availability Notices from LANDSAT, that do not adhere to ECS standards, as invalid. Data ingest is initiated when the data provider sends a Data Availability Notice (DAN) informing ECS that data is available for ingest. A DAN contains a header, linked to data files. The header contains information about the linked files. The linked data files describe a data product using CCSDS standards. One DAN may describe one data file, or several data files, that are available for ingest. ECS validates the DAN, checking that all required fields are present and that the format of the message is correct and consistent with the standards. For this test all DANs submitted are invalid. The ECS determines the DAN is invalid and a Data Availability Acknowledgment (DAA) message is sent to LANDSAT, indicating the disposition of the DAN as invalid. The DAA indicates the reason for declaring a DAN as invalid. If a DAN is deemed invalid on account of invalid file parameters, only those files with invalid parameters are reported.

Test Configuration

Hardware - Client Hosts, Working Storage.

Software - Automated Network Ingest Client Interface CSC.

Data - LOR Data Ingest.

Test Support Required

LANDSAT interface, mechanism to monitor the receipt of DANs and the sending of responses to the source of the DAN, X-Runner Tool

Test Input

Inputs to this test include a series of erroneous DANs submitted to ECS. This includes DANs with a single detached header linked to a single file and DANs with single detached headers linked to multiple files. Only invalid DANs are submitted. At least one invalid DAN is submitted for each possible error condition validated by ECS according to ECS defined standards.

Expected Test Outputs

Outputs to this test include a DAA sent from ECS to the data provider for each DAN received.

Success Criteria

This test is deemed successful if each DAN submitted is received and validated correctly, and a DAA is sent in response, indicating the DAN as invalid. DAAs in response to DANs dispositioned as invalid are to include the reason why validation failed. For DANs with multiple files, each invalid file is indicated in the DAA.

4.10.1.3 Test Case 3: Landsat FTP-Get Ingest Test (TS034.003)

Test Case Description

This test case demonstrates the ability to ingest multiple Landsat data files. A Data Availability Notice is received by ECS. The DAN contains a header, linked to a product specification for multiple data files. The DAN contains data set identification, data granule identification, and a time when data is available. ECS sends a Data Availability Acknowledgment (DAA). Data is transferred and placed in an ECS directory. Data Delivery Notices are sent to Landsat. Landsat acknowledges the delivery with Data Delivery Acknowledgments (DDA). Data ingest is monitored.

Test Configuration

Hardware - Client Hosts, Working Storage.

Software - Automated Network Ingest Client Interface CSC.

Data - LOR Data Ingest.

Test Support Required

Mechanism for monitoring the receipt of messages and data, data comparison tools, X-Runner and Load Runner Tools

Test Input

Inputs to this test include: Data Availability Notices, Data Delivery Acknowledgments (DDA), and at least one data file for each Landsat data type for multiple file ingest.

Expected Test Outputs

Outputs to this test include successful delivery of DANs and data for ingest.

Success Criteria

This test is deemed successful if each DAN submitted from Landsat is successfully received at ECS. All DANs received, result in successful delivery of data from Landsat to ECS. Data comparison of the data before ingest to data after ingest, shows no significant differences.

4.10.1.4 Test Case 4: Landsat FTP-Get Ingest File Validation Test (TS034.004)

Test Case Description

Data submitted for ingest consists of one or more files. This test demonstrates the ability to verify that all required files are present for each type of data the system is requested to ingest. Data ingest is initiated when the LANDSAT sends a Data Availability Notice (DAN) informing ECS that data is available for ingest. Using this DAN, ECS requests electronic data transfer (via ftp) of data described in the DAN, from LANDSAT to ECS. The data is received and checked to verify all required data files are present. The process is monitored. An ingest response is sent to the screen, indicating the ingest as successful if all data requested is present, or unsuccessful if any or all of the data required to fulfill the data request is not present.

Test Configuration

Hardware - Client Hosts, Working Storage.

Software - Automated Network Ingest Client Interface CSC.

Data - LOR Data Ingest.

Test Support Required

LANDSAT interface, mechanism for monitoring the receipt of messages and data and the sending of messages, X-Runner Tool

Test Input

Inputs to this test include valid DANs and valid and invalid data file sets for ingest. There is at least one DAN for each type of LANDSAT data. DANs include single and multiple data file descriptions of data available for ingest. Certain data transfers will result in an unsuccessful ingest due to missing data files.

Expected Test Outputs

Outputs to this test include: status messages

Success Criteria

This test is deemed successful if each DAN submitted is successfully received by ECS and a request for data ingest is generated for each DAN. Data received for ingest is correctly identified as valid if all required data files are present. Data received for ingest is correctly identified as invalid if all required files are not present. A retransmission request is sent for all invalid files, resulting in retransmission of only those files identified as missing.

4.10.1.5 Test Case 5: Landsat FTP-Get Failed Transfer Test (TS034.005)

Test Case Description

This test demonstrates the ability to establish a network connection which enables ECS to send a message, to the provider of ingest data, indicating the inability of ECS to transfer data within a specified time period. After establishing a connection ECS responds to a Data Availability Notice (DAN) with a Data Availability Acknowledgment (DAA). The DAA indicates a time for data retrieval. A second notice is sent to Landsat indicating that ECS is unable to transfer the data within the time period given in the DAA.

Test Configuration

Hardware - Client Hosts, Working Storage.

Software - Automated Network Ingest Client Interface CSC.

Data - LOR Data Ingest.

Test Support Required

Landsat interface, and the X-Runner and Load Runner Tools to record the test.

Test Input

Inputs to this test include DANs.

Expected Test Outputs

Outputs to this test include Data Availability Acknowledgments (DAAs) which indicate a time for data transfer and messages to notify the data provider that ECS is unable to transfer data within the specified time period.

Success Criteria

A data connection is successfully established allowing Landsat to send Data Availability Notices to ECS. For each DAN submitted, a DAA is sent to Landsat indicating a time period for data transfer. For each DAA a subsequent message is sent to the data provider indicating that ECS is unable to transfer the data in the time period indicated in the DAA.

Appendix A: Test Tool Descriptions

The following is a list of test tools needed to support IR1 SDPS I&T.

1. File Comparison Tools- A file comparison utility is needed to compare data outputs with data inputs or to compare data outputs run under different configurations. This is in support of the following test situations:
   - TRMM ingest interface testing comparing files before ingest and after transfer from the TSDIS, SDPF, Landsat, and EDOS interfaces.
2. Reporting Tools - A mechanism is needed to capture test results for analysis. This is in support of the following test situation:
   - Recording of integration status throughout all phases of Science Software integration
   - A log file is used to monitor the incoming and outgoing messages of the Processing CI in support of resource allocation testing
   - A log file is used to monitor receipt and storage of data and message generation in support of ingest and archive storage testing
3. Interface Simulators - Interface simulators are tools that pass messages between ECS and an external interface. The interface is not available at the time of testing. The following tools are needed for Release A testing:
   - FDF simulator for message passing between ECS and FDF for data ingest testing.
   - Data Server simulator for message passing to support Data Processing and Planning.
   - FOS interface simulator to support early interface ingest testing.
4. Data Generators - If data is not available for testing it is necessary to generate a data product.
   - Ancillary data for preprocessing.
   - Simulated PGE for Data Processing.
5. Performance Tools - Tools are needed to collect performance measurements.
   - Performance measuring for CPU time, CPU time of each process, memory usage, disk space usage, the number of I/O accesses
6. Test Drivers - Test drivers are tools that simulate input needed to conduct tests where software is not yet available. This is in support of the following test situations:
   - Simulation of CSMS delivery of a resource utilization report which provides memory usage data, space usage data, and CPU usage data of resources used during a PGE execution.
   - Simulator for Data Processing Responses from Processing to Planning

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Appendix B: Verification Traceability Matrix

The following is a matrix mapping level 4 requirements to test cases.

L4	Test Case Name	Test #
S-DPS-60080	Processing System Initialization and Shutdown	BS003.001
S-DPS-60090	Processing System Initialization and Shutdown	BS003.001
S-DPS-60100	Processing System Initialization and Shutdown	BS003.001
S-DPS-60120	Processing System Initialization and Shutdown	BS003.001
S-DPS-60060	Processing System Recovery	BS003.002
S-DPS-60080	Processing System Recovery	BS003.002
S-DPS-20220	Data Processing	BS003.003
S-DPS-21120	Data Processing	BS003.003
S-DPS-21130	Data Processing	BS003.003
S-DPS-21140	Data Processing	BS003.003
S-DPS-21150	Data Processing	BS003.003
S-DPS-21170	Data Processing	BS003.003
S-DPS-21180	Data Processing	BS003.003
S-DPS-21320	Data Processing	BS003.003
S-DPS-21330	Data Processing	BS003.003
S-DPS-21460	Data Processing	BS003.003
S-DPS-21490	Data Processing	BS003.003
S-DPS-21500	Data Processing	BS003.003
S-DPS-21510	Data Processing	BS003.003
S-DPS-21530	Data Processing	BS003.003
S-DPS-21910	Data Processing	BS003.003
S-DPS-60010	Data Processing	BS003.003
S-DPS-60970	Data Processing	BS003.003
S-DPS-21160	Status Information File	BS003.004
S-DPS-22100	Status Information File	BS003.004
S-DPS-22250	Status Information File	BS003.004
S-DPS-21210	Recovery of PGE Execution Failure	BS003.005
S-DPS-21220	Recovery of PGE Execution Failure	BS003.005
S-DPS-21230	Recovery of PGE Execution Failure	BS003.005
S-DPS-21240	Recovery of PGE Execution Failure	BS003.005
S-DPS-21560	Recovery of PGE Execution Failure	BS003.005
S-DPS-21570	Recovery of PGE Execution Failure	BS003.005
S-DPS-21580	Recovery of PGE Execution Failure	BS003.005
S-DPS-21930	Recovery of PGE Execution Failure	BS003.005
S-DPS-60060	Processing System Fault	BS003.006

L4	Test Case Name	Test #
S-DPS-60080	Processing System Fault	BS003.006
S-DPS-60110	Processing System Fault	BS003.006
S-DPS-60120	Processing System Fault	BS003.006
S-DPS-60430	Processing System Fault	BS003.006
S-DPS-60520	Processing System Fault	BS003.006
S-DPS-60510	Processing System Maintenance and Upgrade	BS003.007
S-DPS-61040	Processing System Maintenance and Upgrade	BS003.007
S-DPS-61045	Processing System Maintenance and Upgrade	BS003.007
S-DPS-60240	Processing Performance	BS003.008
S-DPS-60250	Processing Performance	BS003.008
S-DPS-60330	Processing Performance	BS003.008
S-DPS-60350	Processing Performance	BS003.008
S-DPS-60360	Processing Performance	BS003.008
S-DPS-60370	Processing Performance	BS003.008
S-DPS-60380	Processing Performance	BS003.008
S-PLS-60120	Planning System Initialization and Shutdown	BS004.001
S-PLS-01470	Planning System Initialization and Shutdown	BS004.001
S-PLS-60150	Planning System Initialization and Shutdown	BS004.001
S-PLS-60160	Planning System Initialization and Shutdown	BS004.001
S-PLS-60170	Planning System Initialization and Shutdown	BS004.001
S-PLS-60120	Planning System Recovery	BS004.002
S-PLS-60150	Planning System Recovery	BS004.002
S-PLS-61210	Planning Operating System, Utilities and Tools	BS004.003
S-PLS-61210	Planning Operating System, Utilities and Tools	BS004.003
S-PLS-01470	Planning Operating System, Utilities and Tools	BS004.003
S-PLS-61220	Planning Operating System, Utilities and Tools	BS004.003
S-PLS-61230	Planning Operating System, Utilities and Tools	BS004.003
S-PLS-61240	Planning Operating System, Utilities and Tools	BS004.003
S-PLS-61260	Planning Operating System, Utilities and Tools	BS004.003
S-PLS-61280	Planning Operating System, Utilities and Tools	BS004.003
S-PLS-61350	Planning Operating System, Utilities and Tools	BS004.003
S-PLS-00260	Data Query	BS004.004
S-PLS-00460	Data Query	BS004.004
S-PLS-00875	Data Query	BS004.004
S-PLS-00760	Retrieval of Candidate/Active Plan	BS004.005
S-PLS-00840	Retrieval of Candidate/Active Plan	BS004.005
S-PLS-00845	Retrieval of Candidate/Active Plan	BS004.005
S-DPS-20400	Submittal of Data Processing Request	BS004.006
S-PLS-00020	Submittal of Data Processing Request	BS004.006

L4	Test Case Name	Test #
S-PLS-00660	Submittal of Data Processing Request	BS004.006
S-PLS-00825	Submittal of Data Processing Request	BS004.006
S-PLS-00827	Submittal of Data Processing Request	BS004.006
S-PLS-00830	Submittal of Data Processing Request	BS004.006
S-PLS-00875	Submittal of Data Processing Request	BS004.006
S-PLS-01000	Submittal of Data Processing Request	BS004.006
S-DPS-60617	Submittal of Data Processing Request	BS004.006
S-DPS-60610	Submittal of Data Processing Request	BS004.006
S-PLS-60610	Submittal of Data Processing Request	BS004.006
S-PLS-60625	Submittal of Data Processing Request	BS004.006
S-DPS-20330	Cancellation of Active Plan	BS004.007
S-DPS-20340	Cancellation of Active Plan	BS004.007
S-DPS-20330	Cancellation of Active Plan	BS004.007
S-DPS-20340	Cancellation of Active Plan	BS004.007
S-DPS-20740	Cancellation of Active Plan	BS004.007
S-DPS-20750	Cancellation of Active Plan	BS004.007
S-DPS-20760	Cancellation of Active Plan	BS004.007
S-DPS-22490	Cancellation of Active Plan	BS004.007
S-DPS-22500	Cancellation of Active Plan	BS004.007
S-DPS-22510	Cancellation of Active Plan	BS004.007
S-DPS-22520	Cancellation of Active Plan	BS004.007
S-DPS-22530	Cancellation of Active Plan	BS004.007
S-DPS-22540	Cancellation of Active Plan	BS004.007
S-PLS-00770	Cancellation of Active Plan	BS004.007
S-PLS-00780	Cancellation of Active Plan	BS004.007
S-PLS-00790	Cancellation of Active Plan	BS004.007
S-PLS-01020	Cancellation of Active Plan	BS004.007
S-PLS-01030	Cancellation of Active Plan	BS004.007
S-PLS-01200	Cancellation of Active Plan	BS004.007
S-PLS-00800	Transition of One Active Plan to Another	BS004.008
S-PLS-00820	Transition of One Active Plan to Another	BS004.008
S-DPS-60617	Product Generation	BS004.009
S-DPS-60610	Product Generation	BS004.009
S-PLS-00820	Product Generation	BS004.009
S-PLS-01000	Product Generation	BS004.009
S-PLS-01010	Product Generation	BS004.009
S-PLS-01030	Product Generation	BS004.009
S-PLS-01430	Product Generation	BS004.009
S-PLS-60610	Product Generation	BS004.009

L4	Test Case Name	Test #
S-PLS-60625	Product Generation	BS004.009
S-PLS-61530	Product Generation	BS004.009
S-PLS-00490	Planning System Fault	BS004.010
S-PLS-01240	Planning System Fault	BS004.010
S-PLS-01245	Planning System Fault	BS004.010
S-PLS-01400	Planning System Fault	BS004.010
S-PLS-01410	Planning System Fault	BS004.010
S-PLS-61150	Planning System Fault	BS004.010
S-PLS-60180	Planning System Fault	BS004.010
S-PLS-60190	Planning System Fault	BS004.010
S-PLS-60120	Planning System Fault	BS004.010
S-PLS-60415	Planning System Fault	BS004.010
S-PLS-00730	Scheduling in Test Environment	BS004.011
S-PLS-00740	Scheduling in Test Environment	BS004.011
S-PLS-01220	Scheduling in Test Environment	BS004.011
S-PLS-01610	Scheduling in Test Environment	BS004.011
S-DPS-60500	Scheduling in Test Environment	BS004.011
S-DPS-20120	Management Data	BS004.012
S-DPS-20130	Management Data	BS004.012
S-DPS-20140	Management Data	BS004.012
S-DPS-20230	Management Data	BS004.012
S-DPS-20240	Management Data	BS004.012
S-DPS-20140	Management Data	BS004.012
S-DPS-60160	Management Data	BS004.012
S-PLS-01440	Management Data	BS004.012
S-PLS-01450	Management Data	BS004.012
S-PLS-01460	Management Data	BS004.012
S-PLS-01470	Management Data	BS004.012
S-PLS-01480	Management Data	BS004.012
S-PLS-01490	Management Data	BS004.012
S-PLS-01500	Management Data	BS004.012
S-PLS-60630	Planning System Maintenance and Upgrade	BS004.013
S-PLS-01470	Planning System Maintenance and Upgrade	BS004.013
S-PLS-60640	Planning System Maintenance and Upgrade	BS004.013
S-PLS-60450	Planning System Maintenance and Upgrade	BS004.013
S-PLS-61610	Planning System Maintenance and Upgrade	BS004.013
S-PLS-60320	Planning Performance	BS004.014
S-PLS-60330	Planning Performance	BS004.014
S-PLS-60340	Planning Performance	BS004.014

L4	Test Case Name	Test #
S-INS-00440	TSDIS FTP-Get Ingest Test	BS005.001
S-INS-00325	TSDIS FTP-Get Ingest Test	BS005.001
S-INS-00330	TSDIS FTP-Get Ingest Test	BS005.001
S-INS-00480	TSDIS FTP-Get Ingest Test	BS005.001
S-INS-00470	TSDIS FTP-Get Ingest Test	BS005.001
S-INS-00460	TSDIS FTP-Get Ingest Test	BS005.001
S-INS-00410	TSDIS FTP-Get Ingest Test	BS005.001
S-INS-00340	TSDIS FTP-Get Ingest Test	BS005.001
S-INS-00060	TSDIS FTP-Get Ingest Test	BS005.001
S-INS-00010	TSDIS FTP-Get Ingest Test	BS005.001
S-INS-00560	TSDIS FTP-Get Ingest Test	BS005.001
S-INS-00570	TSDIS FTP-Get Ingest Test	BS005.001
S-INS-00010	TSDIS FTP-Get Ingest Test	BS005.001
S-INS-00020	TSDIS FTP-Get Ingest Test	BS005.001
S-INS-00030	TSDIS FTP-Get Ingest Test	BS005.001
S-INS-00040	TSDIS FTP-Get Ingest Test	BS005.001
S-INS-00440	SDPF FTP-Get Ingest Test	BS005.002
S-INS-00410	SDPF FTP-Get Ingest Test	BS005.002
S-INS-00010	SDPF FTP-Get Ingest Test	BS005.002
S-INS-00520	SDPF FTP-Get Ingest Test	BS005.002
S-INS-00540	SDPF FTP-Get Ingest Test	BS005.002
S-INS-00010	SDPF FTP-Get Ingest Test	BS005.002
S-INS-00020	SDPF FTP-Get Ingest Test	BS005.002
S-INS-00030	SDPF FTP-Get Ingest Test	BS005.002
S-INS-00040	SDPF FTP-Get Ingest Test	BS005.002
S-INS-00060	SDPF FTP-Get Ingest Test	BS005.002
S-INS-00340	SDPF FTP-Get Ingest Test	BS005.002
S-INS-00460	SDPF FTP-Get Ingest Test	BS005.002
S-INS-00470	SDPF FTP-Get Ingest Test	BS005.002
S-INS-00480	SDPF FTP-Get Ingest Test	BS005.002
S-INS-00325	SDPF FTP-Get Ingest Test	BS005.002
S-INS-00330	SDPF FTP-Get Ingest Test	BS005.002
S-INS-00325	NOAA Polling Ingest Request	BS005.003
S-INS-00330	NOAA Polling Ingest Request	BS005.003
S-INS-00410	NOAA Polling Ingest Request	BS005.003
S-INS-00100	NOAA Polling Ingest Request	BS005.003
S-INS-00110	NOAA Polling Ingest Request	BS005.003
S-INS-00120	NOAA Polling Ingest Request	BS005.003
S-INS-00317	NOAA Polling Ingest Request	BS005.003

L4	Test Case Name	Test #
S-INS-00316	NOAA Polling Ingest Request	BS005.003
S-INS-00340	NOAA Polling Ingest Request Test	BS005.003
S-INS-00060	NOAA Polling Ingest Request Test	BS005.003
S-INS-00620	NOAA Polling Ingest Request Test	BS005.003
S-INS-00630	NOAA Polling Ingest Request Test	BS005.003
S-INS-00640	NOAA Polling Ingest Request Test	BS005.003
S-INS-00650	NOAA Polling Ingest Request Test	BS005.003
S-INS-00460	NOAA Polling Ingest Request Test	BS005.003
S-INS-00470	NOAA Polling Ingest Request Test	BS005.003
S-INS-00480	NOAA Polling Ingest Request Test	BS005.003
S-INS-00325	User Interactive Network Ingest Test	BS005.004
S-INS-00330	User Interactive Network Ingest Test	BS005.004
S-INS-00317	User Interactive Network Ingest Test	BS005.004
S-INS-00316	User Interactive Network Ingest Test	BS005.004
S-INS-00180	User Interactive Network Ingest Test	BS005.004
S-INS-00190	User Interactive Network Ingest Test	BS005.004
S-INS-00200	User Interactive Network Ingest Test	BS005.004
S-INS-00205	User Interactive Network Ingest Test	BS005.004
S-INS-00207	User Interactive Network Ingest Test	BS005.004
S-INS-00208	User Interactive Network Ingest Test	BS005.004
S-INS-00209	User Interactive Network Ingest Test	BS005.004
S-INS-00210	User Interactive Network Ingest Test	BS005.004
S-INS-00220	User Interactive Network Ingest Test	BS005.004
S-INS-00221	User Interactive Network Ingest Test	BS005.004
S-INS-00222	User Interactive Network Ingest Test	BS005.004
S-INS-00224	User Interactive Network Ingest Test	BS005.004
S-INS-00225	User Interactive Network Ingest Test	BS005.004
S-INS-00226	User Interactive Network Ingest Test	BS005.004
S-INS-00227	User Interactive Network Ingest Test	BS005.004
S-INS-00228	User Interactive Network Ingest Test	BS005.004
S-INS-00229	User Interactive Network Ingest Test	BS005.004
S-INS-00230	User Interactive Network Ingest Test	BS005.004
S-INS-00010	User Interactive Network Ingest Test	BS005.004
S-INS-00060	User Interactive Network Ingest Test	BS005.004
S-INS-00010	User Interactive Network Ingest Test	BS005.004
S-INS-00020	User Interactive Network Ingest Test	BS005.004
S-INS-00030	User Interactive Network Ingest Test	BS005.004
S-INS-00040	User Interactive Network Ingest Test	BS005.004
S-INS-00480	User Interactive Network Ingest Test	BS005.004

L4	Test Case Name	Test #
S-INS-00410	User Interactive Network Ingest Test	BS005.004
S-INS-00670	User Interactive Network Ingest Test	BS005.004
S-INS-00680	User Interactive Network Ingest Test	BS005.004
S-INS-00010	User Interactive Network Ingest Test	BS005.004
S-INS-00020	User Interactive Network Ingest Test	BS005.004
S-INS-00030	User Interactive Network Ingest Test	BS005.004
S-INS-00040	User Interactive Network Ingest Test	BS005.004
S-INS-00010	User Interactive Network Ingest Test	BS005.004
S-INS-00460	User Interactive Network Ingest Test	BS005.004
S-INS-00235	User Interactive Network Status Request Test	BS005.005
S-INS-00240	User Interactive Network Status Request Test	BS005.005
S-INS-00250	User Interactive Network Status Request Test	BS005.005
S-INS-00260	User Interactive Network Status Request Test	BS005.005
S-INS-00270	User Interactive Network Status Request Test	BS005.005
S-INS-00318	Ingest Priority Test	BS005.006
S-INS-00319	Ingest Priority Test	BS005.006
S-INS-00320	Ingest Priority Test	BS005.006
S-INS-00680	Metadata Validation Test	BS005.007
S-INS-00060	Metadata Validation Test	BS005.007
S-INS-00060	Metadata Extraction Test	BS005.008
S-INS-00406	Metadata Extraction Test	BS005.008
S-INS-00405	Metadata Extraction Test	BS005.008
S-INS-00060	Data Conversion Test	BS005.009
S-INS-00340	Data Conversion Test	BS005.009
S-INS-00930	Ingest Performance Test	BS005.010
S-INS-00940	Ingest Performance Test	BS005.010
S-INS-00950	Ingest Performance Test	BS005.010
S-INS-00960	Ingest Performance Test	BS005.010
S-INS-00970	Ingest Performance Test	BS005.010
S-INS-00990	Ingest Performance Test	BS005.010
S-INS-01000	Ingest Performance Test	BS005.010
S-INS-01010	Ingest Performance Test	BS005.010
S-INS-01020	Ingest Performance Test	BS005.010
S-INS-01030	Ingest Performance Test	BS005.010
S-INS-01040	Ingest Performance Test	BS005.010
S-INS-01050	Ingest Performance Test	BS005.010
S-INS-01060	Ingest Performance Test	BS005.010
S-INS-01070	Ingest Performance Test	BS005.010
S-INS-01080	Ingest Performance Test	BS005.010

L4	Test Case Name	Test #
S-INS-01090	Ingest Performance Test	BS005.010
S-INS-01100	Ingest Performance Test	BS005.010
S-INS-60210	Ingest Performance Test	BS005.010
S-INS-60220	Ingest Performance Test	BS005.010
S-INS-00170	TRMM Data Insertion Test	BS006.001
S-INS-00220	TRMM Data Insertion Test	BS006.001
S-INS-00430	TRMM Data Insertion Test	BS006.001
S-DSS-00080	TRMM Data Insertion Test	BS006.001
S-DSS-00090	TRMM Data Insertion Test	BS006.001
S-DSS-00095	TRMM Data Insertion Test	BS006.001
S-DSS-00150	TRMM Data Insertion Test	BS006.001
S-DSS-00520	TRMM Data Insertion Test	BS006.001
S-DSS-00080	TRMM Data Insertion	BS006.001
S-DSS-00090	TRMM Data Insertion	BS006.001
S-DSS-00150	TRMM Data Insertion	BS006.001
S-DSS-00520	TRMM Data Insertion	BS006.001
S-DSS-03380	TRMM Data Insertion	BS006.001
S-DSS-03390	TRMM Data Insertion	BS006.001
S-INS-00408	User Interactive Network Archive Test	BS006.002
S-INS-00409	User Interactive Network Archive Test	BS006.002
S-INS-00420	FOS Data Insertion Test	BS006.003
S-INS-00720	FOS Data Insertion Test	BS006.003
S-DSS-00700	FOS Data Insertion Test	BS006.003
S-DPS-21500	Automated in-line QA of Standard Products	BS006.005
S-DPS-21510	Automated in-line QA of Standard Products	BS006.005
S-DPS-21470	Automated in-line QA of Standard Products	BS006.005
S-DPS-21480	Automated in-line QA of Standard Products	BS006.005
S-DPS-21490	Automated in-line QA of Standard Products	BS006.005
S-DPS-21460	Automated in-line QA of Standard Products	BS006.005
S-DSS-00010	Product Generation and Archive Test	BS006.006
S-DPS-40020	Delivery and Receipt of Science Software Delivery	BS006.007
S-DPS-40030	Delivery and Receipt of Science Software Delivery	BS006.007
S-DPS-40040	Delivery and Receipt of Science Software Delivery	BS006.007
S-CLS-10290	Data Server Search Request	BS008.002
S-CLS-10360	Data Server Search Request	BS008.002
S-CLS-10370	Data Server Search Request	BS008.002
S-CLS-01570	Desktop User Comments	BS008.005
S-CLS-14210	Desk Top-User Comments	BS008.005
S-CLS-14200	Desk Top-User Comments	BS008.005

L4	Test Case Name	Test #
S-CLS-13310	Desk Top-Access to the EOSDIS Science	BS008.006
S-CLS-13320	Desk Top-Access to the EOSDIS Science	BS008.006
S-CLS-13350	Desk Top-Access to the EOSDIS Science	BS008.006
S-CLS-13340	Desk Top-Access to the EOSDIS Science	BS008.006
S-CLS-13330	Desk Top-Access to the EOSDIS Science	BS008.006
S-DMS-20540	Workbench Data Dictionary Management Services	BS008.007
S-DMS-20530	Workbench Data Dictionary Management Services	BS008.007
S-DMS-20250	Workbench Data Dictionary Management Services	BS008.007
S-DMS-20560	Workbench Data Dictionary Management Services	BS008.007
S-DMS-20550	Workbench Data Dictionary Management Services	BS008.007
S-DMS-20580	Workbench Data Dictionary Management Services	BS008.007
S-DMS-20570	Workbench Data Dictionary Management Services	BS008.007
S-DMS-20590	Workbench Data Dictionary Management Services	BS008.007
S-DMS-20600	Workbench Data Dictionary Management Services	BS008.007
S-DMS-20610	Workbench Data Dictionary Management Services	BS008.007
S-DMS-20190	Workbench Data Dictionary Management Services	BS008.007
S-DMS-20880	Workbench Data Dictionary Management Services	BS008.007
S-CLS-13000	Workbench Application Programming Interfaces	BS008.008
S-CLS-13010	Workbench Application Programming Interfaces	BS008.008
S-CLS-13020	Workbench Application Programming Interfaces	BS008.008
S-CLS-13030	Workbench Application Programming Interfaces	BS008.008
S-DSS-00020	Search with Distribution Test	BS009.001
S-DSS-00030	Search with Distribution Test	BS009.001
S-DSS-00450	Search with Distribution Test	BS009.001
S-DSS-00460	Search with Distribution Test	BS009.001
S-DSS-003820	Search with Distribution Test	BS009.001
S-DSS-003830	Search with Distribution Test	BS009.001
S-DSS-00530	Search with Distribution Test	BS009.001
S-DSS-00540	Search with Distribution Test	BS009.001
S-DMS-00060	Search with Distribution Test	BS009.001
S-DSS-00110	Search with Distribution Test	BS009.001
S-DSS-00120	Search with Distribution Test	BS009.001
S-DSS-00130	Search with Distribution Test	BS009.001
S-IOS-00140	Search with Distribution Test	BS009.001
S-DSS-00450	Search with Distribution Test	BS009.001
S-DSS-00460	Search with Distribution Test	BS009.001
S-DSS-03800	Search with Distribution Test	BS009.001
S-DSS-03810	Search with Distribution Test	BS009.001
S-DSS-03820	Search with Distribution Test	BS009.001

L4	Test Case Name	Test #
S-DSS-03830	Search with Distribution Test	BS009.001
S-DSS-00530	Search with Distribution Test	BS009.001
S-DSS-03790	Search with Distribution Test	BS009.001
S-DSS-01060	Search with Distribution Test	BS009.001
S-DSS-01070	Search with Distribution Test	BS009.001
S-DSS-01090	Search with Distribution Test	BS009.001
S-DSS-01100	Search with Distribution Test	BS009.001
S-DSS-01120	Search with Distribution Test	BS009.001
S-DSS-01130	Search with Distribution Test	BS009.001
S-DSS-01140	Search with Distribution Test	BS009.001
S-DSS-01150	Search with Distribution Test	BS009.001
S-DSS-01160	Search with Distribution Test	BS009.001
S-DSS-01180	Search with Distribution Test	BS009.001
S-DSS-00670	Search with Distribution Processing Test	BS009.002
S-DSS-00680	Search with Distribution Processing Test	BS009.002
S-DSS-00690	Search with Distribution Processing Test	BS009.002
S-DSS-00450	Search with Distribution Processing Test	BS009.002
S-DSS-00460	Search with Distribution Processing Test	BS009.002
S-DSS-03800	Search with Distribution Processing Test	BS009.002
S-DSS-03810	Search with Distribution Processing Test	BS009.002
S-DSS-03820	Search with Distribution Processing Test	BS009.002
S-DSS-03830	Search with Distribution Processing Test	BS009.002
S-DSS-00530	Search with Distribution Processing Test	BS009.002
S-DSS-03790	Search with Distribution Processing Test	BS009.002
S-DSS-01060	Search with Distribution Processing Test	BS009.002
S-DSS-01070	Search with Distribution Processing Test	BS009.002
S-DSS-01120	Search with Distribution Processing Test	BS009.002
S-DSS-01130	Search with Distribution Processing Test	BS009.002
S-DSS-01140	Search with Distribution Processing Test	BS009.002
S-DSS-01150	Search with Distribution Processing Test	BS009.002
S-DSS-01160	Search with Distribution Processing Test	BS009.002
S-DSS-01180	Search with Distribution Processing Test	BS009.002
S-DSS-01190	Search with Distribution Processing Test	BS009.002
S-DSS-01210	Search with Distribution Processing Test	BS009.002
S-DSS-03210	Product Generation Access Test	BS009.003
S-DSS-03220	Product Generation Access Test	BS009.003
S-DSS-03230	Product Generation Access Test	BS009.003
S-DSS-03240	Product Generation Access Test	BS009.003
S-DSS-03250	Product Generation Access Test	BS009.003

L4	Test Case Name	Test #
S-DSS-03260	Product Generation Access Test	BS009.003
S-DSS-03270	Product Generation Access Test	BS009.003
S-DSS-03280	Product Generation Access Test	BS009.003
S-DSS-00670	Product Generation Access Test	BS009.003
S-DSS-00680	Product Generation Access Test	BS009.003
S-DSS-00690	Product Generation Access Test	BS009.003
S-DSS-03010	Product Generation Access Test	BS009.003
S-DSS-03020	Product Generation Access Test	BS009.003
S-DSS-03030	Product Generation Access Test	BS009.003
S-DSS-03040	Product Generation Access Test	BS009.003
S-DSS-03370	Product Generation Access Test	BS009.003
S-DSS-03380	Product Generation Access Test	BS009.003
S-DSS-03390	Product Generation Access Test	BS009.003
S-DSS-00040	Data Access Log Test	BS009.004
S-DSS-00050	Data Access Log Test	BS009.004
S-DSS-00055	Data Access Log Test	BS009.004
S-DSS-00470	Data Access Log Test	BS009.004
S-DSS-00480	Data Access Log Test	BS009.004
S-DSS-00500	Data Access Log Test	BS009.004
S-DSS-00510	Data Access Log Test	BS009.004
S-DSS-00470	Data Access Log Test	BS009.004
S-DSS-00480	Data Access Log Test	BS009.004
S-DSS-00490	Data Access Log Test	BS009.004
S-DSS-00500	Data Access Log Test	BS009.004
S-DSS-00510	Data Access Log Test	BS009.004
S-DSS-03910	Data Access Log Test	BS009.004
S-DSS-03920	Data Access Log Test	BS009.004
S-DSS-03930	Data Access Log Test	BS009.004
S-DSS-01090	Data Access Log Test	BS009.004
S-DSS-01100	Data Access Log Test	BS009.004
S-DSS-01120	Data Access Log Test	BS009.004
S-DSS-01130	Data Access Log Test	BS009.004
S-DSS-01470	Data Type Event Subscription Test	BS009.005
S-DSS-01480	Data Type Event Subscription Test	BS009.005
S-DSS-01490	Data Type Event Subscription Test	BS009.005
S-DSS-01500	Data Type Event Subscription Test	BS009.005
S-DSS-01510	Data Type Event Subscription Test	BS009.005
S-DSS-01520	Data Type Event Subscription Test	BS009.005
S-DSS-01530	Data Type Event Subscription Test	BS009.005

L4	Test Case Name	Test #
S-DSS-01540	Data Type Event Subscription Test	BS009.005
S-DSS-01550	Data Type Event Subscription Test	BS009.005
S-DSS-01570	Data Type Event Subscription Test	BS009.005
S-DSS-01600	Data Type Event Subscription Test	BS009.005
S-DSS-01610	Data Type Event Subscription Test	BS009.005
S-DSS-01460	Time Subscription Test	BS009.006
S-DSS-01470	Time Subscription Test	BS009.006
S-DSS-01480	Time Subscription Test	BS009.006
S-DSS-01510	Time Subscription Test	BS009.006
S-DSS-01520	Time Subscription Test	BS009.006
S-DSS-01530	Time Subscription Test	BS009.006
S-DSS-01550	Time Subscription Test	BS009.006
S-DSS-01570	Time Subscription Test	BS009.006
S-DSS-01600	Time Subscription Test	BS009.006
S-DSS-01610	Time Subscription Test	BS009.006
S-DSS-00051	Access to Service Test	BS009.007
S-DSS-00850	Access to Service Test	BS009.007
S-DSS-00860	Access to Service Test	BS009.007
S-DSS-00870	Access to Service Test	BS009.007
S-DSS-00880	Access to Service Test	BS009.007
S-DSS-01090	Access to Service Test	BS009.007
S-DSS-01100	Access to Service Test	BS009.007
S-DSS-01120	Access to Service Test	BS009.007
S-DSS-01130	Access to Service Test	BS009.007
S-DSS-00850	Access to Error Test	BS009.008
S-DSS-00860	Access to Error Test	BS009.008
S-DSS-00870	Access to Error Test	BS009.008
S-DSS-00880	Access to Error Test	BS009.008
S-DSS-01090	Access to Error Test	BS009.008
S-DSS-01100	Access to Error Test	BS009.008
S-DSS-01120	Access to Error Test	BS009.008
S-DPS-30100	Ingest of Orbit Data Test	TS006.001
S-DPS-30330	Ingest of Orbit Data Test	TS006.001
S-DPS-30410	Ingest of Attitude Data Test	TS006.002
S-DPS-30630	Ingest of Attitude Data Test	TS006.002
S-DPS-31100	Ingest of NOAA NMC data	TS006.003
S-DPS-31110	Ingest of NOAA NMC data	TS006.003
S-DPS-31120	Ingest of NOAA NMC data	TS006.003
S-DPS-31200	Ingest of NOAA NMC data	TS006.003

L4	Test Case Name	Test #
S-DPS-31100	Ingest of NOAA NMC Data Test	TS006.003
S-DPS-31110	Ingest of NOAA NMC Data Test	TS006.003
S-DPS-31120	Ingest of NOAA NMC Data Test	TS006.003
S-DPS-31200	Ingest of NOAA NMC Data Test	TS006.003
S-DPS-31400	Ingest of IERS and USNO Data	TS006.004
S-DPS-31500	Ingest of IERS and USNO Data	TS006.004
S-DPS-31400	Ingest of IERS and USNO data Test	TS006.004
S-DPS-31500	Ingest of IERS and USNO data Test	TS006.004
S-DPS-30800	Ingest of SDPF Level 0 Data Test	TS006.005
S-INS-00590	Ingest of EDOS Level 0 Data Hard Media	TS006.006
S-INS-00595	Ingest of EDOS Level 0 Data Hard Media	TS006.006
S-DPS-30900	Ingest of EDOS Level 0 Data Hard Media	TS006.006
S-DPS-31700	Ingest of Non-Standard EOS DAAC Data Test	TS006.007
S-DPS-31800	Ingest of Non-Standard EOS DAAC Data Test	TS006.007
S-DPS-21320	Reformatting NMC Data Test	TS007.001
S-DPS-21540	Reformatting NMC Data Test	TS007.001
S-DPS-31200	Reformatting NMC Data Test	TS007.001
S-DPS-31220	Reformatting NMC Data Test	TS007.001
S-DPS-21320	Reformatting NESDIS Data Test	TS007.002
S-DPS-21540	Reformatting NESDIS Data Test	TS007.002
S-DPS-31200	Reformatting NESDIS Data Test	TS007.002
S-DPS-31210	Reformatting NESDIS Data Test	TS007.002
S-DPS-21320	Transform IERS and USNO Data Test	TS007.003
S-DPS-21540	Transform IERS and USNO Data Test	TS007.003
S-DPS-31510	Transform IERS and USNO Data Test	TS007.003
S-DPS-31610	Convert Non-Standard EOS Data Products Test	TS007.004
S-DPS-31620	Convert Non-Standard EOS Data Products Test	TS007.004
S-DPS-30700-a	Adherence to SDP Toolkit Requirements for Ephemeris Data Test	TS007.005
S-DPS-30700-b	Adherence to SDP Toolkit Requirements for Ephemeris Data Test	TS007.005
S-DPS-30700-c	Adherence to SDP Toolkit Requirements for Ephemeris Data Test	TS007.005
S-DPS-30710-a	Adherence to SDP Toolkit Requirements for Ephemeris Data Test Data Test	TS007.005
S-DPS-30710-b	Adherence to SDP Toolkit Requirements for Ephemeris Data Test	TS007.005
S-DPS-30710-c	Adherence to SDP Toolkit Requirements for Ephemeris Data Test	TS007.005
S-DPS-30720-a	Adherence to SDP Toolkit Requirements for Ephemeris Data Test	TS007.005

L4	Test Case Name	Test #
S-DPS-30720-b	Adherence to SDP Toolkit Requirements for Ephemeris Data Test	TS007.005
S-DPS-30730-a	Adherence to SDP Toolkit Requirements for Ephemeris Data Test	TS007.005
S-DPS-30730-b	Adherence to SDP Toolkit Requirements for Ephemeris Data Test	TS007.005
S-DPS-31010	Adherence to SDP Toolkit Requirements for Level 0 Data in General	TS007.006
S-DPS-31020-a	Adherence to SDP Toolkit Requirements for Level 0 Data in General	TS007.006
S-DPS-31020-b	Adherence to SDP Toolkit Requirements for Level 0 Data in General	TS007.006
S-DPS-31020-c	Adherence to SDP Toolkit Requirements for Level 0 Data in General	TS007.006
S-DPS-31020-a	Adherence to SDP Toolkit Requirements for Level 0 Data in General	TS007.006
S-DPS-31020-d	Adherence to SDP Toolkit Requirements for Level 0 Data in General	TS007.006
S-DPS-31020-e	Adherence to SDP Toolkit Requirements for Level 0 Data in General	TS007.006
S-DPS-31020-f	Adherence to SDP Toolkit Requirements for Level 0 Data in General	TS007.006
S-DPS-31020-g	Adherence to SDP Toolkit Requirements for Level 0 Data in General	TS007.006
S-DPS-31030-a	Adherence to SDP Toolkit Requirements for Level 0 Data in General	TS007.006
S-DPS-31030-b	Adherence to SDP Toolkit Requirements for Level 0 Data in General	TS007.006
S-DPS-31030-c	Adherence to SDP Toolkit Requirements for Level 0 Data in General	TS007.006
S-DPS-31030-d	Adherence to SDP Toolkit Requirements for Level 0 Data in General	TS007.006
S-DPS-31030-e	Adherence to SDP Toolkit Requirements for Level 0 Data in General	TS007.006
S-DPS-31030-f	Adherence to SDP Toolkit Requirements for Level 0 Data in General	TS007.006
S-DPS-31030-g	Adherence to SDP Toolkit Requirements for Level 0 Data in General	TS007.006
S-DPS-31800	Adherence to SDP Toolkit Requirements for SDPF Level 0 Data Test	TS007.007
S-DPS-31810	Adherence to SDP Toolkit Requirements for SDPF Level 0 Data Test	TS007.007

L4	Test Case Name	Test #
S-DPS-30920	Adherence to SDP Toolkit Requirements for EDOS Level 0 Data Test	TS007.008
S-DPS-30900	Adherence to SDP Toolkit Requirements for EDOS Level 0 Data Test	TS007.008
S-DPS-30910	Adherence to SDP Toolkit Requirements for EDOS Level 0 Data Test	TS007.008
S-DPS-40400	Science Software Static and Dynamic Code Checking Test	TS008.001
S-DPS-40405	Science Software Static and Dynamic Code Checking Test	TS008.001
S-DPS-40410	Science Software Static and Dynamic Code Checking Test	TS008.001
S-DPS-40420	Science Software Static and Dynamic Code Checking Test	TS008.001
S-DPS-40430	Science Software Static and Dynamic Code Checking Test	TS008.001
S-DPS-42340	Science Software Static and Dynamic Code Checking Test	TS008.001
S-DPS-40700	Multiple File Type Data Visualization Test	TS008.002
S-DPS-40810	Multiple File Type Data Visualization Test	TS008.002
S-DPS-40830	Multiple File Type Data Visualization Test	TS008.002
S-DPS-40840	Multiple File Type Data Visualization Test	TS008.002
S-DPS-40720	Data Visualization Plotting Capabilities Test	TS008.003
S-DPS-40730	Data Visualization Plotting Capabilities Test	TS008.003
S-DPS-40740	Data Visualization Plotting Capabilities Test	TS008.003
S-DPS-40750	Data Visualization Plotting Capabilities Test	TS008.003
S-DPS-40760	Data Visualization Plotting Capabilities Test	TS008.003
S-DPS-40780	Data Visualization Plotting Capabilities Test	TS008.003
S-DPS-40790	Data Visualization Plotting Capabilities Test	TS008.003
S-DPS-40800	Data Visualization Plotting Capabilities Test	TS008.003
S-DPS-40810	Data Visualization Plotting Capabilities Test	TS008.003
S-DPS-40710	Data Visualization Imaging Capabilities Test	TS008.004
S-DPS-40730	Data Visualization Imaging Capabilities Test	TS008.004
S-DPS-40740	Data Visualization Plotting Capabilities Test	TS008.004
S-DPS-40750	Data Visualization Imaging Capabilities Test	TS008.004
S-DPS-40760	Data Visualization Imaging Capabilities Test	TS008.004
S-DPS-40770	Data Visualization Imaging Capabilities Test	TS008.004
S-DPS-40790	Data Visualization Imaging Capabilities Test	TS008.004
S-DPS-40800	Data Visualization Imaging Capabilities Test	TS008.004
S-DPS-40810	Data Visualization Imaging Capabilities Test	TS008.004
S-DPS-40820	Data Visualization Feature Enhancement Capability	TS008.005
S-DPS-41300	Updating the PGE Database Test	TS008.006
S-DPS-41310	Updating the PGE Database Test	TS008.006
S-DPS-41320	Updating the PGE Database Test	TS008.006
S-DPS-41330	Updating the PGE Database Test	TS008.006
S-DPS-41340	Updating the PGE Database Test	TS008.006

L4	Test Case Name	Test #
S-DPS-41350	Updating the PGE Database Test	TS008.006
S-DPS-21460	Automated (In-Line) QA of Standard Products	TS009.001
S-DPS-21470	Automated (In-Line) QA of Standard Products	TS009.001
S-DPS-21480	Automated (In-Line) QA of Standard Products	TS009.001
S-DPS-21490	Automated (In-Line) QA of Standard Products	TS009.001
S-DPS-21500	Automated (In-Line) QA of Standard Products	TS009.001
S-DPS-21510	Automated (In-Line) QA of Standard Products	TS009.001
S-DPS-21790	Manual Retrieval and Display of Generated Data Product Test for QA	TS009.002
S-DPS-21800	Manual Retrieval and Display of Generated Data Product Test for QA	TS009.002
S-DPS-21810	Manual Retrieval and Display of Generated Data Product Test for QA	TS009.002
S-DPS-21820	Manual Retrieval and Display of Generated Data Product Test for QA	TS009.002
S-DPS-21830	Manual Retrieval and Display of Generated Data Product Test for QA	TS009.002
S-DPS-21840	Manual Retrieval and Display of Generated Data Product Test for QA	TS009.002
S-DPS-21850	Manual Retrieval and Display of Generated Data Product Test for QA	TS009.002
S-DPS-22050	Manual Retrieval and Display of Generated Data Product Test for QA	TS009.002
S-DPS-22060	Manual Retrieval and Display of Generated Data Product Test for QA	TS009.002
S-DPS-22070	Manual Retrieval and Display of Generated Data Product Test for QA	TS009.002
S-DPS-80110	Operating System, Utilities and Tools Test for QA	TS009.003
S-DPS-80120	Operating System, Utilities and Tools Test for QA	TS009.003
S-DPS-80130	Operating System, Utilities and Tools Test for QA	TS009.003
S-DPS-80140	Operating System, Utilities and Tools Test for QA	TS009.003
S-DPS-80150	Operating System, Utilities and Tools Test for QA	TS009.003
S-DPS-80155	Documentation Test for QA	TS009.004
S-DPS-20100	Resource Management Information	TS010.001
S-DPS-20210	Resource Management Information	TS010.001
S-DPS-21780	Resource Management Information	TS010.001
S-DPS-60970	Resource Management Information	TS010.001
S-DPS-20210	Resource Allocation	TS010.002
S-DPS-21070	Resource Allocation	TS010.002
S-DPS-21080	Resource Allocation	TS010.002
S-DPS-21090	Resource Allocation	TS010.002

L4	Test Case Name	Test #
S-DPS-20170	Hardware Configuration	TS010.003
S-DPS-20180	Hardware Configuration	TS010.003
S-DPS-20190	Hardware Configuration	TS010.003
S-DPS-20400	Successful Acceptance of Data Processing Request	TS011.001
S-DPS-20410	Successful Acceptance of Data Processing Request	TS011.001
S-DPS-20490	Successful Acceptance of Data Processing Request	TS011.001
S-DPS-20500	Successful Acceptance of Data Processing Request	TS011.001
S-DPS-20510	Successful Acceptance of Data Processing Request	TS011.001
S-DPS-60010	Successful Acceptance of Data Processing Request	TS011.001
S-DPS-60050	Successful Acceptance of Data Processing Request	TS011.001
S-DPS-20410	Unsuccessful Validation of Data Processing Request	TS011.002
S-DPS-20420	Unsuccessful Validation of Data Processing Request	TS011.002
S-DPS-20430	Unsuccessful Validation of Data Processing Request	TS011.002
S-DPS-20440	Unsuccessful Validation of Data Processing Request	TS011.002
S-DPS-20460	Unsuccessful Validation of Data Processing Request	TS011.002
S-DPS-20470	Unsuccessful Validation of Data Processing Request	TS011.002
S-DPS-20480	Unsuccessful Validation of Data Processing Request	TS011.002
S-DPS-20510	Unsuccessful Validation of Data Processing Request	TS011.002
S-DPS-20520	Unsuccessful Validation of Data Processing Request	TS011.002
S-DPS-20600	Data Staging	TS011.003
S-DPS-20610	Data Staging	TS011.003
S-DPS-20620	Data Staging	TS011.003
S-DPS-20630	Data Staging	TS011.003
S-DPS-20640	Data Staging	TS011.003
S-DPS-20650	Data Staging	TS011.003
S-DPS-20660	Data Staging	TS011.003
S-DPS-20670	Data Staging	TS011.003
S-DPS-20680	Data Staging	TS011.003
S-DPS-20690	Data Staging	TS011.003
S-DPS-20700	Data Staging	TS011.003
S-DPS-20710	Data Staging	TS011.003
S-DPS-20720	Data Staging	TS011.003
S-DPS-20760	Data Staging	TS011.003
S-DPS-20770	Data Staging	TS011.003
S-DPS-20780	Data Staging	TS011.003
S-DPS-20790	Data Staging	TS011.003
S-DPS-20800	Data Staging	TS011.003
S-DPS-20810	Data Staging	TS011.003
S-DPS-20820	Data Staging	TS011.003

L4	Test Case Name	Test #
S-DPS-21920	Data Staging	TS011.003
S-DPS-60010	Data Staging	TS011.003
S-DPS-60020	Data Staging	TS011.003
S-DPS-21760	Operator Interaction - View	TS011.004
S-DPS-21770	Operator Interaction - View	TS011.004
S-DPS-21790	Operator Interaction - View	TS011.004
S-DPS-21800	Operator Interaction - View	TS011.004
S-DPS-21810	Operator Interaction - View	TS011.004
S-DPS-21820	Operator Interaction - View	TS011.004
S-DPS-21830	Operator Interaction - View	TS011.004
S-DPS-21840	Operator Interaction - View	TS011.004
S-DPS-21890	Operator Interaction - View	TS011.004
S-DPS-21900	Operator Interaction - View	TS011.004
S-DPS-22050	Operator Interaction - View	TS011.004
S-DPS-22060	Operator Interaction - View	TS011.004
S-DPS-22070	Operator Interaction - View	TS011.004
S-DPS-22080	Operator Interaction - View	TS011.004
S-DPS-22090	Operator Interaction - View	TS011.004
S-DPS-22110	Operator Interaction - View	TS011.004
S-DPS-22200	Operator Interaction - View	TS011.004
S-DPS-22210	Operator Interaction - View	TS011.004
S-DPS-22220	Operator Interaction - View	TS011.004
S-DPS-22230	Operator Interaction - View	TS011.004
S-DPS-22240	Operator Interaction - View	TS011.004
S-DPS-21720	Operator Interaction - Cancel, Suspend, Resume, Modify Data Processing Request	TS011.005
S-DPS-21750	Operator Interaction - Cancel, Suspend, Resume, Modify Data Processing Request	TS011.005
S-DPS-21850	Operator Interaction - Cancel, Suspend, Resume, Modify Data Processing Request	TS011.005
S-DPS-21880	Operator Interaction - Cancel/ Suspend, Resume, Modify Data Processing Request	TS011.005
S-DPS-21880	Operator Interaction - Cancel/ Suspend, Resume, Modify Data Processing Request	TS011.005
S-DPS-21960	Operator Interaction - Cancel, Suspend, Resume, Modify Data Processing Request	TS011.005
S-DPS-21970	Operator Interaction - Cancel, Suspend, Resume, Modify Data Processing Request	TS011.005
S-DPS-21980	Operator Interaction - Cancel, Suspend, Resume, Modify Data Processing Request	TS011.005

L4	Test Case Name	Test #
S-DPS-21990	Operator Interaction - Cancel, Suspend, Resume, Modify Data Processing Request	TS011.005
S-DPS-22000	Operator Interaction - Cancel, Suspend, Resume, Modify Data Processing Request	TS011.005
S-DPS-22010	Operator Interaction - Cancel, Suspend, Resume, Modify Data Processing Request	TS011.005
S-DPS-22400	Operator Interaction - Cancel, Suspend, Resume, Modify Data Processing Request	TS011.005
S-DPS-22410	Operator Interaction - Cancel, Suspend, Resume, Modify Data Processing Request	TS011.005
S-DPS-22470	Operator Interaction - Cancel/ Suspend, Resume, Modify Data Processing Request	TS011.005
S-DPS-22480	Operator Interaction - Cancel/ Suspend, Resume, Modify Data Processing Request	TS011.005
S-DPS-22500	Operator Interaction - Cancel/ Suspend, Resume, Modify Data Processing Request	TS011.005
S-DPS-22510	Operator Interaction - Cancel/ Suspend, Resume, Modify Data Processing Request	TS011.005
S-DPS-22520	Operator Interaction - Cancel/ Suspend, Resume, Modify Data Processing Request	TS011.005
S-DPS-22530	Operator Interaction - Cancel/ Suspend, Resume, Modify Data Processing Request	TS011.005
S-DPS-22540	Operator Interaction - Cancel/ Suspend, Resume, Modify Data Processing Request	TS011.005
S-DPS-22620	Operator Interaction - Cancel/ Suspend, Resume, Modify Data Processing Request	TS011.005
S-DPS-22630	Operator Interaction - Cancel/ Suspend, Resume, Modify Data Processing Request	TS011.005
S-DPS-60010	Operator Interaction - Cancel/ Suspend, Resume, Modify Data Processing Request	TS011.005
S-DPS-60050	Operator Interaction - Cancel/ Suspend, Resume, Modify Data Processing Request	TS011.005
S-DPS-20730	Operator Interaction - Terminate Data Staging/Destaging	TS011.006
S-DPS-20740	Operator Interaction - Terminate Data Staging/Destaging	TS011.006
S-DPS-20750	Operator Interaction - Terminate Data Staging/Destaging	TS011.006
S-DPS-21700	Operator Interaction - Terminate Data Staging/Destaging	TS011.006
S-DPS-21710	Operator Interaction - Terminate Data Staging/Destaging	TS011.006
S-DPS-21850	Operator Interaction - Terminate Data Staging/Destaging	TS011.006
S-DPS-21000	Initiation of PGE Execution	TS011.007
S-DPS-60010	Initiation of PGE Execution	TS011.007
S-DPS-60050	Initiation of PGE Execution	TS011.007
S-DPS-20830	Data Destaging	TS011.008

L4	Test Case Name	Test #
S-DPS-20840	Data Destaging	TS011.008
S-DPS-20850	Data Destaging	TS011.008
S-DPS-20860	Data Destaging	TS011.008
S-DPS-20870	Data Destaging	TS011.008
S-DPS-20880	Data Destaging	TS011.008
S-DPS-21540	Data Destaging	TS011.008
S-DPS-21550	Data Destaging	TS011.008
S-DPS-21590	Data Destaging	TS011.008
S-DPS-21940	Data Destaging	TS011.008
S-DPS-21950	Data Destaging	TS011.008
S-DPS-60010	Data Destaging	TS011.008
S-DPS-60020	Data Destaging	TS011.008
S-PLS-00500	Candidate Plan Generation For Standard Production Request	TS012.001
S-PLS-00670	Candidate Plan Generation For Standard Production Request	TS012.001
S-PLS-00690	Candidate Plan Generation For Standard Production Request	TS012.001
S-PLS-00710	Candidate Plan Generation For Standard Production Request	TS012.001
S-PLS-00760	Candidate Plan Generation For Standard Production Request	TS012.001
S-PLS-01200	Candidate Plan Generation For Standard Production Request	TS012.001
S-PLS-00800	Entry of Production Plan Activation Request	TS012.002
S-PLS-00850	Entry of Production Plan Activation Request	TS012.002
S-PLS-00860	Entry of Production Plan Activation Request	TS012.002
S-PLS-01200	Entry of Production Plan Activation Request	TS012.002
S-PLS-00820	Entry of Production Plan Activation Request	TS012.002
S-PLS-00840	Entry of Production Plan Activation Request	TS012.002
S-PLS-00400	Planning Database Management	TS012.003
S-PLS-00410	Planning Database Management	TS012.003
S-PLS-00420	Planning Database Management	TS012.003
S-PLS-00430	Planning Database Management	TS012.003
S-PLS-00440	Planning Database Management	TS012.003
S-PLS-00450	Planning Database Management	TS012.003
S-PLS-01200	Planning Database Management	TS012.003
S-PLS-00430	Plan Modification With New Version Database	TS012.004
S-PLS-00450	Plan Modification With New Version Database	TS012.004
S-PLS-00500	Plan Modification With New Version Database	TS012.004
S-PLS-00670	Plan Modification With New Version Database	TS012.004
S-PLS-00680	Plan Modification With New Version Database	TS012.004
S-PLS-00690	Plan Modification With New Version Database	TS012.004
S-PLS-00710	Plan Modification With New Version Database	TS012.004
S-PLS-00710	Plan Modification With New Version Database	TS012.004

L4	Test Case Name	Test #
S-PLS-01200	Plan Modification With New Version Database	TS012.004
S-PLS-00005	Successful Acceptance of Standard Production Request	TS013.001
S-PLS-00010	Successful Acceptance of Standard Production Request	TS013.001
S-PLS-00060	Successful Acceptance of Standard Production Request	TS013.001
S-PLS-00600	Successful Acceptance of Standard Production Request	TS013.001
S-PLS-00870	Successful Acceptance of Standard Production Request	TS013.001
S-PLS-00872	Successful Acceptance of Standard Production Request	TS013.001
S-PLS-01200	Successful Acceptance of Standard Production Request	TS013.001
S-PLS-00040	Rejection of Standard Production Request	TS013.002
S-PLS-00050	Rejection of Standard Production Request	TS013.002
S-PLS-00060	Rejection of Standard Production Request	TS013.002
S-PLS-00180	Modification of Production Request	TS013.003
S-PLS-00200	Modification of Production Request	TS013.003
S-PLS-00220	Modification of Production Request	TS013.003
S-PLS-01200	Modification of Production Request	TS013.003
S-PLS-00180	Cancellation of Production Request	TS013.004
S-PLS-00200	Cancellation of Production Request	TS013.004
S-PLS-00220	Cancellation of Production Request	TS013.004
S-PLS-00880	Cancellation of Production Request	TS013.004
S-PLS-01200	Cancellation of Production Request	TS013.004
S-PLS-00470	Status of Production Requests	TS013.005
S-PLS-01200	Status of Production Requests	TS013.005
S-PLS-01280	Status of Production Requests	TS013.005
S-PLS-01320	Status of Production Requests	TS013.005
S-PLS-00470	Status of Data Processing Requests	TS013.006
S-PLS-01200	Status of Data Processing Requests	TS013.006
S-PLS-01270	Status of Data Processing Requests	TS013.006
S-PLS-01320	Status of Data Processing Requests	TS013.006
S-PLS-00475	Status of Candidate and Active Plans	TS013.007
S-PLS-01200	Status of Candidate and Active Plans	TS013.007
S-PLS-01200	Resource Utilization Report Generation	TS013.008
S-PLS-01290	Resource Utilization Report Generation	TS013.008
S-PLS-01320	Resource Utilization Report Generation	TS013.008
S-PLS-01420	Resource Utilization Report Generation	TS013.008
S-PLS-01200	Processing Log Report	TS013.009
S-PLS-01250	Processing Log Report	TS013.009
S-PLS-01260	Processing Log Report	TS013.009
S-PLS-01320	Processing Log Report	TS013.009
S-PLS-00480	Miscellaneous Status Reports	TS013.010

L4	Test Case Name	Test #
S-PLS-01300	Miscellaneous Status Reports	TS013.010
S-PLS-01310	Miscellaneous Status Reports	TS013.010
S-PLS-01320	Miscellaneous Status Reports	TS013.010
S-PLS-00475	Data Availability Schedule Information	TS013.011
S-PLS-00620	Data Availability Schedule Information	TS013.011
S-PLS-00640	Data Availability Schedule Information	TS013.011
S-PLS-00660	Data Availability Schedule Information	TS013.011
S-INS-00130	Media Ingest Test	TS014.001
S-INS-00140	Media Ingest Test	TS014.001
S-INS-00425	Media Ingest Test	TS014.001
S-INS-00530	Media Ingest Test	TS014.001
S-INS-00550	Media Ingest Test	TS014.001
S-INS-00600	Media Ingest Test	TS014.001
S-INS-00610	Media Ingest Test	TS014.001
S-INS-00810	Media Ingest Test	TS014.001
S-INS-00316	Media Ingest Test	TS014.001
S-INS-00325	Media Ingest Test	TS014.001
S-INS-00330	Media Ingest Test	TS014.001
S-INS-00160	Media Ingest Test	TS014.001
S-INS-00165	Media Ingest Test	TS014.001
S-INS-00170	Media Ingest Test	TS014.001
S-INS-00320	Ingest Threshold Test	TS014.002
S-INS-00380	Ingest Threshold Test	TS014.002
S-INS-00390	Ingest Threshold Test	TS014.002
S-INS-00392	Ingest Threshold Test	TS014.002
S-INS-00490	Ingest History Log Test	TS014.003
S-INS-00500	Ingest History Log Test	TS014.003
S-INS-00510	Ingest History Log Test	TS014.003
S-INS-00270	Administration Ingest Status Test	TS014.004
S-INS-00280	Administration Ingest Status Test	TS014.004
S-INS-00290	Administration Ingest Status Test	TS014.004
S-INS-00295	Administration Ingest Status Test	TS014.004
S-INS-00300	Administration Ingest Status Test	TS014.004
S-INS-00310	Administration Ingest Status Test	TS014.004
S-INS-00315	Administration Ingest Status Test	TS014.004
S-INS-00350	Ingest Request Cancel Test	TS014.005
S-INS-00360	Ingest Request Cancel Test	TS014.005
S-INS-00364	Ingest Request Cancel Test	TS014.005
S-INS-00392	Ingest Request Cancel Test	TS014.005

L4	Test Case Name	Test #
S-INS-00450	Ingest Retry Test	TS014.006
S-INS-60150	Ingest System Initialization and Shutdown Test	TS014.007
S-INS-60160	Ingest System Initialization and Shutdown Test	TS014.007
S-INS-60170	Ingest System Initialization and Shutdown Test	TS014.007
S-INS-60190	Ingest System Initialization and Shutdown Test	TS014.007
S-INS-60650	Ingest System Initialization and Shutdown Test	TS014.007
S-INS-60650	Ingest System Fault Isolation Test	TS014.008
S-INS-60180	Ingest System Fault Isolation Test	TS014.008
S-INS-60120	Ingest System Fault Isolation Test	TS014.008
S-INS-60140	Ingest System Fault Isolation Test	TS014.008
S-INS-60650	Ingest Maintenance Test	TS014.009
S-INS-60330	Ingest Maintenance Test	TS014.009
S-INS-60340	Ingest Maintenance Test	TS014.009
S-INS-60350	Ingest Maintenance Test	TS014.009
S-INS-60410	Ingest Maintenance Test	TS014.009
S-INS-60420	Ingest Maintenance Test	TS014.009
S-INS-60120	Ingest Maintenance Test	TS014.009
S-INS-60650	Ingest System Recovery Test	TS014.010
S-INS-60150	Ingest System Recovery Test	TS014.010
S-INS-60140	Ingest System Recovery Test	TS014.010
S-INS-60310	Ingest System Recovery Test	TS014.010
S-INS-60320	Ingest System Recovery Test	TS014.010
S-INS-00820	Optical Disk V0 Ingest Test	TS015.001
S-INS-00810	8mm Tape V0 Ingest Test	TS015.002
S-INS-00830	8mm Tape V0 Ingest Test	TS015.002
S-INS-00800	FTP V0 Ingest Test	TS015.003
S-INS-00800	FTP V0 Ingest Test	TS015.003
S-DSS-20450	Data Type Insertion Test	TS016.001
S-DSS-20460	Data Type Insertion Test	TS016.001
S-DSS-20465	Data Type Insertion Test	TS016.001
S-DSS-20600	Data Type Insertion Test	TS016.001
S-DSS-20670	Data Type Insertion Test	TS016.001
S-DSS-20680	Data Type Insertion Test	TS016.001
S-DSS-20690	Data Type Insertion Test	TS016.001
S-DSS-20700	Data Type Insertion Test	TS016.001
S-DSS-03010	Data Type Insertion Test	TS016.001
S-DSS-03020	Data Type Insertion Test	TS016.001
S-DSS-03030	Data Type Insertion Test	TS016.001
S-DSS-03040	Data Type Insertion Test	TS016.001

L4	Test Case Name	Test #
S-DSS-03110	Data Type Insertion Test	TS016.001
S-DSS-03120	Data Type Insertion Test	TS016.001
S-DSS-03130	Data Type Insertion Test	TS016.001
S-DSS-03140	Data Type Insertion Test	TS016.001
S-DSS-03150	Data Type Insertion Test	TS016.001
S-DSS-03160	Data Type Insertion Test	TS016.001
S-DSS-03170	Data Type Insertion Test	TS016.001
S-DSS-03180	Data Type Insertion Test	TS016.001
S-DSS-03210	Data Type Insertion Test	TS016.001
S-DSS-03220	Data Type Insertion Test	TS016.001
S-DSS-03230	Data Type Insertion Test	TS016.001
S-DSS-03240	Data Type Insertion Test	TS016.001
S-DSS-03250	Data Type Insertion Test	TS016.001
S-DSS-03260	Data Type Insertion Test	TS016.001
S-DSS-03270	Data Type Insertion Test	TS016.001
S-DSS-03280	Data Type Insertion Test	TS016.001
S-DSS-03290	Data Type Insertion Test	TS016.001
S-DSS-03300	Data Type Insertion Test	TS016.001
S-DSS-03310	Data Type Insertion Test	TS016.001
S-DSS-03320	Data Type Insertion Test	TS016.001
S-DSS-03350	Data Type Insertion Test	TS016.001
S-DSS-03360	Data Type Insertion Test	TS016.001
S-DSS-03370	Data Type Insertion Test	TS016.001
S-DSS-03390	Data Type Insertion Test	TS016.001
S-DSS-03420	Data Type Insertion Test	TS016.001
S-DSS-03430	Data Type Insertion Test	TS016.001
S-DSS-03440	Data Type Insertion Test	TS016.001
S-DSS-03450	Data Type Insertion Test	TS016.001
S-DSS-03480	Data Type Insertion Test	TS016.001
S-DSS-03490	Data Type Insertion Test	TS016.001
S-DSS-03500	Data Type Insertion Test	TS016.001
S-DSS-03510	Data Type Insertion Test	TS016.001
S-DSS-03520	Data Type Insertion Test	TS016.001
S-DSS-03530	Data Type Insertion Test	TS016.001
S-DSS-03540	Data Type Insertion Test	TS016.001
S-DSS-03550	Data Type Insertion Test	TS016.001
S-DSS-03560	Data Type Insertion Test	TS016.001
S-DSS-03570	Data Type Insertion Test	TS016.001
S-DSS-03580	Data Type Insertion Test	TS016.001

L4	Test Case Name	Test #
S-DSS-03590	Data Type Insertion Test	TS016.001
S-DSS-03600	Data Type Insertion Test	TS016.001
S-DSS-03610	Data Type Insertion Test	TS016.001
S-DSS-03620	Data Type Insertion Test	TS016.001
S-DSS-03630	Data Type Insertion Test	TS016.001
S-DSS-03640	Data Type Insertion Test	TS016.001
S-DSS-03650	Data Type Insertion Test	TS016.001
S-DSS-03660	Data Type Insertion Test	TS016.001
S-DSS-03670	Data Type Insertion Test	TS016.001
S-DSS-03680	Data Type Insertion Test	TS016.001
S-DSS-03690	Data Type Insertion Test	TS016.001
S-DSS-03720	Data Type Insertion Test	TS016.001
S-DSS-03730	Data Type Insertion Test	TS016.001
S-DSS-03740	Data Type Insertion Test	TS016.001
S-DSS-20670	Data Type Insertion Test	TS016.001
S-DSS-20690	Data Type Insertion Test	TS016.001
S-DSS-20700	Data Type Insertion Test	TS016.001
S-DSS-04370	Archive Storage Test	TS016.002
S-DSS-20010	Archive Storage Test	TS016.002
S-DSS-20020	Archive Storage Test	TS016.002
S-DSS-20030	Archive Storage Test	TS016.002
S-DSS-20080	Archive Storage Test	TS016.002
S-DSS-03380	Archive Storage Test	TS016.002
S-DSS-03420	Archive Storage Test	TS016.002
S-DSS-03430	Archive Storage Test	TS016.002
S-DSS-03440	Archive Storage Test	TS016.002
S-DSS-03450	Archive Storage Test	TS016.002
S-DSS-03460	Archive Storage Test	TS016.002
S-DSS-03470	Archive Storage Test	TS016.002
S-DSS-03480	Archive Storage Test	TS016.002
S-DSS-03490	Archive Storage Test	TS016.002
S-DSS-03500	Archive Storage Test	TS016.002
S-DSS-03510	Archive Storage Test	TS016.002
S-DSS-03520	Archive Storage Test	TS016.002
S-DSS-03530	Archive Storage Test	TS016.002
S-DSS-03540	Archive Storage Test	TS016.002
S-DSS-03550	Archive Storage Test	TS016.002
S-DSS-03560	Archive Storage Test	TS016.002
S-DSS-03570	Archive Storage Test	TS016.002

L4	Test Case Name	Test #
S-DSS-03580	Archive Storage Test	TS016.002
S-DSS-03590	Archive Storage Test	TS016.002
S-DSS-03600	Archive Storage Test	TS016.002
S-DSS-03610	Archive Storage Test	TS016.002
S-DSS-03620	Archive Storage Test	TS016.002
S-DSS-03630	Archive Storage Test	TS016.002
S-DSS-03640	Archive Storage Test	TS016.002
S-DSS-03650	Archive Storage Test	TS016.002
S-DSS-03660	Archive Storage Test	TS016.002
S-DSS-03670	Archive Storage Test	TS016.002
S-DSS-03680	Archive Storage Test	TS016.002
S-DSS-03690	Archive Storage Test	TS016.002
S-DSS-03720	Archive Storage Test	TS016.002
S-DSS-03730	Archive Storage Test	TS016.002
S-DSS-03740	Archive Storage Test	TS016.002
S-DSS-20450	Archive Storage Test	TS016.002
S-DSS-20460	Archive Storage Test	TS016.002
S-DSS-20465	Archive Storage Test	TS016.002
S-DSS-20600	Archive Storage Test	TS016.002
S-DSS-21360	Archive Storage Test	TS016.002
S-DSS-04380	Metadata Storage Test	TS016.003
S-DSS-04400	Metadata Storage Test	TS016.003
S-DSS-04410	Metadata Storage Test	TS016.003
S-DSS-04420	Metadata Storage Test	TS016.003
S-DSS-04430	Metadata Storage Test	TS016.003
S-DSS-04440	Metadata Storage Test	TS016.003
S-DSS-04450	Metadata Storage Test	TS016.003
S-DSS-04460	Metadata Storage Test	TS016.003
S-DSS-04470	Metadata Storage Test	TS016.003
S-DSS-04480	Metadata Storage Test	TS016.003
S-DSS-04490	Metadata Storage Test	TS016.003
S-DSS-04500	Metadata Storage Test	TS016.003
S-DSS-04510	Metadata Storage Test	TS016.003
S-DSS-04520	Metadata Storage Test	TS016.003
S-DSS-04530	Metadata Storage Test	TS016.003
S-DSS-04540	Metadata Storage Test	TS016.003
S-DSS-20090	Metadata Storage Test	TS016.003
S-DSS-00160	Metadata Storage Test	TS016.003
S-DSS-00165	Metadata Storage Test	TS016.003

L4	Test Case Name	Test #
S-DSS-10010	Document Storage Test	TS016.004
S-DSS-10051	Document Storage Test	TS016.004
S-DSS-10080	Document Storage Test	TS016.004
S-DSS-10090	Document Storage Test	TS016.004
S-DSS-10100	Document Storage Test	TS016.004
S-DSS-10110	Document Storage Test	TS016.004
S-DSS-10140	Document Storage Test	TS016.004
S-DSS-10150	Document Storage Test	TS016.004
S-DSS-10160	Document Storage Test	TS016.004
S-DSS-10170	Document Storage Test	TS016.004
S-DSS-10180	Document Storage Test	TS016.004
S-DSS-10190	Document Storage Test	TS016.004
S-DSS-10220	Document Storage Test	TS016.004
S-DSS-10240	Document Storage Test	TS016.004
S-DSS-30020	Electronic Distribution Check Test	TS017.001
S-DSS-30030	Electronic Distribution Check Test	TS017.001
S-DSS-30040	Electronic Distribution Check Test	TS017.001
S-DSS-30060	Physical Media Distribution Check Test	TS017.002
S-DSS-30070	Physical Media Distribution Check Test	TS017.002
S-DSS-00030	Distribution Queuing Order Test	TS017.003
S-DSS-00040	Distribution Queuing Order Test	TS017.003
S-DSS-00050	Distribution Queuing Order Test	TS017.003
S-DSS-00051	Distribution Queuing Order Test	TS017.003
S-DSS-00055	Distribution Queuing Order Test	TS017.003
S-DSS-30120	PULL Data to Specified Destination Test	TS017.004
S-DSS-30120	PULL Data to Specified Destination Test	TS017.004
S-DSS-30115	PULL Data to Specified Destination Test	TS017.004
S-DSS-30130	PULL Data to Specified Destination Test	TS017.004
S-DSS-30140	PULL Data to Specified Destination Test	TS017.004
S-DSS-30171	PULL Data to Specified Destination Test	TS017.004
S-DSS-30175	PULL Data to Specified Destination Test	TS017.004
S-DSS-30250	PULL Data to Specified Destination Test	TS017.004
S-DSS-30260	PULL Data to Specified Destination Test	TS017.004
S-DSS-30280	PULL Data to Specified Destination Test	TS017.004
S-DSS-30570	PULL Data to Specified Destination Test	TS017.004
S-DSS-30575	PULL Data to Specified Destination Test	TS017.004
S-DSS-30580	PULL Data to Specified Destination Test	TS017.004
S-DSS-30585	PULL Data to Specified Destination Test	TS017.004
S-DSS-30290	PULL Data to Specified Destination Test	TS017.004

L4	Test Case Name	Test #
S-DSS-30520	PULL Data to Specified Destination Test	TS017.004
S-DSS-30530	PULL Data to Specified Destination Test	TS017.004
S-DSS-30390	PULL Data to Specified Destination Test	TS017.004
S-DSS-30400	PULL Data to Specified Destination Test	TS017.004
S-DSS-30780	PULL Data to Specified Destination Test	TS017.004
S-DSS-30010	PUSH Data to Specified Destination Test	TS017.005
S-DSS-30120	PUSH Data to Specified Destination Test	TS017.005
S-DSS-30120	PUSH Data to Specified Destination Test	TS017.005
S-DSS-30115	PUSH Data to Specified Destination Test	TS017.005
S-DSS-30130	PUSH Data to Specified Destination Test	TS017.005
S-DSS-30140	PUSH Data to Specified Destination Test	TS017.005
S-DSS-30171	PUSH Data to Specified Destination Test	TS017.005
S-DSS-30175	PUSH Data to Specified Destination Test	TS017.005
S-DSS-30250	PUSH Data to Specified Destination Test	TS017.005
S-DSS-30180	Distribution Queuing Order Test	TS017.005
S-DSS-30260	PUSH Data to Specified Destination Test	TS017.005
S-DSS-30280	PUSH Data to Specified Destination Test	TS017.005
S-DSS-30290	PUSH Data to Specified Destination Test	TS017.005
S-DSS-30390	PUSH Data to Specified Destination Test	TS017.005
S-DSS-30600	PUSH Data to Specified Destination Test	TS017.005
S-DSS-30400	PUSH Data to Specified Destination Test	TS017.005
S-DSS-30780	PUSH Data to Specified Destination Test	TS017.005
S-DSS-30110	Media Distribution Test	TS017.006
S-DSS-30120	Media Distribution Test	TS017.006
S-DSS-30270	Media Distribution Test	TS017.006
S-DSS-30705	Media Distribution Test	TS017.006
S-DSS-30360	Media Distribution Test	TS017.006
S-DSS-30370	Media Distribution Test	TS017.006
S-DSS-30380	Media Distribution Test	TS017.006
S-DSS-30590	Media Distribution Test	TS017.006
S-DSS-30400	Media Distribution Test	TS017.006
S-DSS-30430	Media Distribution Test	TS017.006
S-DSS-30431	Media Distribution Test	TS017.006
S-DSS-30780	Media Distribution Test	TS017.006
S-DSS-30440	Media Distribution Test	TS017.006
S-DSS-30460	Media Distribution Test	TS017.006
S-DSS-30480	Media Distribution Test	TS017.006
S-DSS-30660	Media Distribution Test	TS017.006
S-DSS-30640	Distribution Device State Test	TS017.007

L4	Test Case Name	Test #
S-DSS-30650	Distribution Device State Test	TS017.007
S-DSS-30285	Distribution Transmission Error Test	TS017.008
S-DSS-30288	Distribution Transmission Error Test	TS017.008
S-DSS-30295	Distribution Transmission Error Test	TS017.008
S-DSS-30290	Distribution Transmission Error Test	TS017.008
S-DSS-30296	Distribution Transmission Error Test	TS017.008
S-DSS-30300	Distribution Transmission Error Test	TS017.008
S-DSS-30305	Distribution Transmission Error Test	TS017.008
S-DSS-30310	Distribution Transmission Error Test	TS017.008
S-DSS-30320	Distribution Transmission Error Test	TS017.008
S-DSS-30330	Distribution Transmission Error Test	TS017.008
S-DSS-30350	Distribution Transmission Error Test	TS017.008
S-DSS-30355	Distribution Transmission Error Test	TS017.008
S-DSS-30670	Distribution Transmission Error Test	TS017.008
S-DSS-30680	Distribution Transmission Error Test	TS017.008
S-DSS-30720	Distribution Transmission Error Test	TS017.008
S-DSS-00550	View Schema Test	TS018.001
S-DSS-00600	View Schema Test	TS018.001
S-DSS-00610	Data Schema Operations Test	TS018.001
S-DSS-03750	View Schema Test	TS018.001
S-DSS-03760	View Schema Test	TS018.001
S-DSS-03770	View Schema Test	TS018.001
S-DSS-00560	Data Schema Operations Test	TS018.002
S-DSS-00570	Data Schema Operations Test	TS018.002
S-DSS-00580	Data Schema Operations Test	TS018.002
S-DSS-00590	Data Schema Operations Test	TS018.002
S-DSS-20100	Manual Media Access Test	TS019.001
S-DSS-20110	Manual Media Access Test	TS019.001
S-DSS-20120	Manual Media Access Test	TS019.001
S-DSS-20130	Manual Media Access Test	TS019.001
S-DSS-20140	Manual Media Access Test	TS019.001
S-DSS-20150	Manual Media Access Test	TS019.001
S-DSS-20160	Manual Media Access Test	TS019.001
S-DSS-20480	Manual Media Access Test	TS019.001
S-DSS-20510	Manual Media Access Test	TS019.001
S-DSS-20710	Manual Media Access Test	TS019.001
S-DSS-20890	Manual Media Access Test	TS019.001
S-DSS-20900	Manual Media Access Test	TS019.001
S-DSS-20910	Manual Media Access Test	TS019.001

L4	Test Case Name	Test #
S-DSS-30740	Manual Media Access Test	TS019.001
S-DSS-30730	Manual Media Access Test	TS019.001
S-DSS-21200	Automatic Media Access Test	TS019.002
S-DSS-20170	Automatic Media Access Test	TS019.002
S-DSS-20180	Automatic Media Access Test	TS019.002
S-DSS-20190	Automatic Media Access Test	TS019.002
S-DSS-20200	Automatic Media Access Test	TS019.002
S-DSS-20255	Uncorrectable Error Media Test	TS019.003
S-DSS-20250	Uncorrectable Error Media Test	TS019.003
S-DSS-20230	Uncorrectable Error Media Test	TS019.003
S-DSS-20220	Uncorrectable Error Media Test	TS019.003
S-DSS-30490	Uncorrectable Error Media Test	TS019.003
S-DSS-20980	Storage Device and File Directory Test	TS019.004
S-DSS-20990	Storage Device and File Directory Test	TS019.004
S-DSS-21000	Storage Device and File Directory Test	TS019.004
S-DSS-21010	Storage Device and File Directory Test	TS019.004
S-DSS-20350	Storage Device and File Directory Test	TS019.004
S-DSS-20360	Storage Device and File Directory Test	TS019.004
S-DSS-20650	Storage Device and File Directory Test	TS019.004
S-DSS-20660	Storage Device and File Directory Test	TS019.004
S-DSS-21040	Storage Device and File Directory Test	TS019.004
S-DSS-21050	Storage Device and File Directory Test	TS019.004
S-DSS-21060	Storage Device and File Directory Test	TS019.004
S-DSS-21070	Storage Device and File Directory Test	TS019.004
S-DSS-21080	Storage Device and File Directory Test	TS019.004
S-DSS-21090	Storage Device and File Directory Test	TS019.004
S-DSS-21100	Storage Device and File Directory Test	TS019.004
S-DSS-21360	Storage Device and File Directory Test	TS019.004
S-DSS-21390	Storage Device and File Directory Test	TS019.004
S-DSS-21400	Storage Device and File Directory Test	TS019.004
S-DSS-21410	Storage Device and File Directory Test	TS019.004
S-DSS-21420	Storage Device and File Directory Test	TS019.004
S-DSS-21430	Storage Device and File Directory Test	TS019.004
S-DSS-21440	Storage Device and File Directory Test	TS019.004
S-DSS-21450	Storage Device and File Directory Test	TS019.004
S-DSS-21460	Storage Device and File Directory Test	TS019.004
S-DSS-21470	Storage Device and File Directory Test	TS019.004
S-DSS-21480	Storage Device and File Directory Test	TS019.004
S-DSS-21490	Storage Device and File Directory Test	TS019.004

L4	Test Case Name	Test #
S-DSS-20380	Storage with Degraded Mode Test	TS019.005
S-DSS-21170	Storage with Degraded Mode Test	TS019.005
S-DSS-00900	Storage with Degraded Mode Test	TS019.005
S-DSS-20390	Storage Recovery Test	TS019.006
S-DSS-20400	Storage Recovery Test	TS019.006
S-DSS-21190	Storage Recovery Test	TS019.006
S-DSS-21270	Storage Recovery Test	TS019.006
S-DSS-21330	Storage Recovery Test	TS019.006
S-DSS-21380	Storage Recovery Test	TS019.006
S-DSS-21180	Backup Archive Media Test	TS019.007
S-DSS-20420	Backup Archive Media Test	TS019.007
S-DSS-20430	Backup Archive Media Test	TS019.007
S-DSS-20440	Backup Archive Media Test	TS019.007
S-DSS-20740	Backup Archive Media Test	TS019.007
S-DSS-21210	Backup Archive Media Test	TS019.007
S-DSS-21220	Backup Archive Media Test	TS019.007
S-DSS-21230	Storage Startup and Storage Device Allocation Test	TS019.008
S-DSS-20520	Storage Startup and Storage Device Allocation Test	TS019.008
S-DSS-20530	Storage Startup and Storage Device Allocation Test	TS019.008
S-DSS-20540	Storage Startup and Storage Device Allocation Test	TS019.008
S-DSS-21020	Storage Startup and Storage Device Allocation Test	TS019.008
S-DSS-21030	Storage Startup and Storage Device Allocation Test	TS019.008
S-DSS-21110	Storage Startup and Storage Device Allocation Test	TS019.008
S-DSS-21130	Storage Startup and Storage Device Allocation Test	TS019.008
S-DSS-20760	Archive Log Processing Test	TS019.009
S-DSS-20770	Archive Log Processing Test	TS019.009
S-DSS-20780	Archive Log Processing Test	TS019.009
S-DSS-20790	Archive Log Processing Test	TS019.009
S-DSS-20880	Archive Log Processing Test	TS019.009
S-DSS-21570	Storage Management Performance Test	TS019.010
S-CLS-13120	User Validation	TS020.001
S-CLS-13380	User Validation	TS020.001
S-CLS-13430	User Profile Change	TS020.002
S-CLS-12520	User Profile Change	TS020.002
S-CLS-13150	User Profile Change	TS020.002
S-CLS-13140	User Profile Change	TS020.002
S-CLS-00080	Invalid Registration	TS020.003
S-CLS-13420	Valid Registration	TS020.004
S-CLS-13430	Valid Registration	TS020.004

L4	Test Case Name	Test #
S-CLS-13440	Valid Registration	TS020.004
S-CLS-10770	Data and Service Offerings	TS021.001
S-CLS-00060	Data and Service Offerings	TS021.001
S-IOS-00780	Data and Service Offerings	TS021.001
S-CLS-10700	Data and Service Offerings	TS021.001
S-CLS-10690	Data and Service Offerings	TS021.001
S-IOS-00600	Data and Service Offerings	TS021.001
S-IOS-00250	Data and Service Offerings	TS021.001
S-IOS-00260	Data and Service Offerings	TS021.001
S-IOS-00230	Data and Service Offerings	TS021.001
S-IOS-00200	Data and Service Offerings	TS021.001
S-IOS-00210	Data and Service Offerings	TS021.001
S-IOS-00220	Data and Service Offerings	TS021.001
S-IOS-00700	Data and Service Offerings	TS021.001
S-IOS-00710	Data and Service Offerings	TS021.001
S-IOS-00720	Data and Service Offerings	TS021.001
S-IOS-00730	Data and Service Offerings	TS021.001
S-IOS-00740	Data and Service Offerings	TS021.001
S-IOS-00750	Data and Service Offerings	TS021.001
S-IOS-00760	Data and Service Offerings	TS021.001
S-IOS-00770	Data and Service Offerings	TS021.001
S-IOS-00690	Data and Service Offerings	TS021.001
S-IOS-00230	Invalid Request of Data and Service Offerings	TS021.002
S-IOS-00190	Invalid Request of Data and Service Offerings	TS021.002
S-IOS-00200	Invalid Request of Data and Service Offerings	TS021.002
S-IOS-00210	Invalid Request of Data and Service Offerings	TS021.002
S-IOS-00220	Invalid Request of Data and Service Offerings	TS021.002
S-IOS-00700	Invalid Request of Data and Service Offerings	TS021.002
S-IOS-00710	Invalid Request of Data and Service Offerings	TS021.002
S-IOS-00720	Invalid Request of Data and Service Offerings	TS021.002
S-IOS-00730	Invalid Request of Data and Service Offerings	TS021.002
S-IOS-00740	Invalid Request of Data and Service Offerings	TS021.002
S-IOS-00730	Invalid Request of Data and Service Offerings	TS021.002
S-IOS-00740	Invalid Request of Data and Service Offerings	TS021.002
S-IOS-00750	Invalid Request of Data and Service Offerings	TS021.002
S-IOS-00760	Invalid Request of Data and Service Offerings	TS021.002
S-IOS-00770	Invalid Request of Data and Service Offerings	TS021.002
S-IOS-00640	Advertising Service Subscriptions	TS021.003
S-IOS-00650	Advertising Service Subscriptions	TS021.003

L4	Test Case Name	Test #
S-IOS-00670	Advertising Service Subscriptions	TS021.003
S-IOS-00690	Advertising Service Subscriptions	TS021.003
S-IOS-00640	Defining Service Class	TS021.004
S-IOS-00220	Defining Service Class	TS021.004
S-IOS-00120	Defining Service Class	TS021.004
S-IOS-00190	Defining Service Class	TS021.004
S-IOS-00200	Defining Service Class	TS021.004
S-IOS-00210	Defining Service Class	TS021.004
S-IOS-00380	Defining Service Class	TS021.004
S-IOS-00410	Defining Service Class	TS021.004
S-IOS-00090	Administrative Utilities	TS021.004
S-IOS-00100	Administrative Utilities	TS021.004
S-IOS-00110	Administrative Utilities	TS021.004
S-IOS-00200	Administrative Utilities - Access Control	TS021.006
S-IOS-00210	Administrative Utilities - Access Control	TS021.006
S-IOS-00230	Administrative Utilities - Access Control	TS021.006
S-IOS-00080	Administrative Utilities - Access Control	TS021.006
S-IOS-00130	Administrative Utilities - Backup and Recovery	TS021.007
S-IOS-00140	Administrative Utilities - Backup and Recovery	TS021.007
S-IOS-00150	Administrative Utilities - Backup and Recovery	TS021.007
S-IOS-00160	Administrative Utilities - Backup and Recovery	TS021.007
S-IOS-00170	Administrative Utilities - Import and Export	TS021.008
S-IOS-00180	Administrative Utilities - Import and Export	TS021.008
S-IOS-00470	Unintended Interruption	TS021.009
S-CLS-00080	Unintended Interruption	TS021.009
S-IOS-00340	Performance Test	TS021.010
S-IOS-00350	Performance Test	TS021.010
S-IOS-00360	Performance Test	TS021.010
Data Dictionary	Performance Test	TS021.010
S-DMS-20600	Data Dictionary Error Processing	TS022.002
S-DMS-20100	Data Dictionary Error Processing	TS022.002
S-DMS-20540	Management Services	TS022.003
S-DMS-20530	Management Services	TS022.003
S-DMS-20250	Management Services	TS022.003
S-DMS-20560	Management Services	TS022.003
S-DMS-20550	Management Services	TS022.003
S-DMS-20580	Management Services	TS022.003
S-DMS-20570	Management Services	TS022.003
S-DMS-20590	Management Services	TS022.003

L4	Test Case Name	Test #
S-DMS-20600	Management Services	TS022.003
S-DMS-20610	Management Services	TS022.003
S-DMS-20190	Management Services	TS022.003
S-DMS-20880	Management Services	TS022.003
S-IOS-00500	Management Services	TS022.003
S-IOS-00490	Management Services	TS022.003
S-DMS-20220	Access Control	TS022.004
S-DMS-20210	Access Control	TS022.004
S-DMS-20300	Backup and Recovery	TS022.005
S-DMS-20310	Backup and Recovery	TS022.005
S-DMS-20320	Backup and Recovery	TS022.005
S-DMS-20330	Backup and Recovery	TS022.005
S-DMS-20340	Import and Export	TS022.006
S-DMS-20350	Import and Export	TS022.006
S-DMS-20640	Unintended Interruption	TS022.007
S-CLS-00080	Unintended Interruption	TS022.007
S-CLS-10330	EOSView Raster Image	TS023.001
S-CLS-10340	EOSView Raster Image	TS023.001
S-CLS-10440	EOSView Raster Image	TS023.001
S-CLS-10450	EOSView Raster Image	TS023.001
S-CLS-10410	EOSView Array Data Display	TS023.002
S-CLS-10430	EOSView Array Data Display	TS023.002
S-CLS-10350	EOSView Latitude and Longitude Grid Lines	TS023.003
S-CLS-10420	EOSView Color Palette	TS023.004
S-CLS-10380	EOSView Animation	TS023.005
S-CLS-10400	EOSView Animation	TS023.005
S-CLS-00120	Desktop-GUI Support	TS024.002
S-CLS-00130	Desktop-GUI Support	TS024.002
S-CLS-00790	Desktop-GUI Support	TS024.002
S-CLS-00100	Desk Top-GUI Support	TS024.002
S-CLS-00090	Desk Top-GUI Support	TS024.002
S-CLS-00080	Desk Top-GUI Support	TS024.002
S-CLS-00050	Desk Top-GUI Support	TS024.002
S-CLS-00040	Desk Top-GUI Support	TS024.002
S-CLS-00030	Desk Top-GUI Support	TS024.002
S-CLS-00020	Desk Top-GUI Support	TS024.002
S-CLS-00010	Desk Top-GUI Support	TS024.002
S-CLS-10940	Simple Inventory Search	TS025.001
S-CLS-10940	Complex Inventory Search	TS025.002

L4	Test Case Name	Test #
S-CLS-10620	Guide Search	TS027.001
S-CLS-10840	Guide Search	TS027.001
S-CLS-12900	Document Access	TS027.002
S-CLS-10740	Guides Updates	TS027.003
S-DSS-00110	Status Request Test	TS030.001
S-DSS-00120	Status Request Test	TS030.001
S-DSS-00140	Status Request Test	TS030.001
S-CLS-00100	Context Sensitive Help	TS031.001
S-CLS-00110	Context Sensitive Help	TS031.001
S-DPS-31100	Ingest of NOAA NMC data	TS032.001
S-DPS-31110	Ingest of NOAA NMC data	TS032.001
S-DPS-31120	Ingest of NOAA NMC data	TS032.001
S-DPS-31200	Ingest of NOAA NMC data	TS032.001
S-DPS-31100	Ingest of NOAA NMC Data Test	TS032.001
S-DPS-31110	Ingest of NOAA NMC Data Test	TS032.001
S-DPS-31120	Ingest of NOAA NMC Data Test	TS032.001
S-DPS-31200	Ingest of NOAA NMC Data Test	TS032.001
S-DPS-31200	Ingest of NOAA NESDIS Data	TS032.002
S-DPS-31200	Ingest of NOAA NESDIS data Test	TS032.002
S-DPS-31700	Ingest of Non-Standard EOS DAAC Data Test	TS032.003
S-DPS-31800	Ingest of Non-Standard EOS DAAC Data Test	TS032.003
S-INS-00070	EDOS Data Ingest Test	TS033.001
S-INS-00080	EDOS Delivery Record Transfer Test	TS033.002
S-INS-00590	EDOS Delivery Record Transfer Test	TS033.002
S-INS-00580	EDOS Delivery Record Transfer Test	TS033.002
S-INS-00090	EDOS Delivery Record Period Test	TS033.003
S-INS-00780	Landsat FTP-Get Ingest Test	TS034.003

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Abbreviations and Acronyms

ADC	Affiliated Data Center
AI&T	Algorithm Integration and Test
AM	Morning (anti meridian)
AM-1	EOS AM Project spacecraft 1, morning spacecraft series–ASTER, CERES, MISR, MODIS and MOPITT instruments
APID	Application's Identifier
ASCII	American Standard Code for Information Exchange
CBI	Computer Base Interface
CCSDS	Consultative Committee for Space Data Systems
CDRL	Contract Data Requirements List
CERES	Clouds and Earth's Radiant Energy System
CHUI	Character User Interface
CIs	Configuration item
CM	Configuration Management
COTS	Commercial off-the-shelf software (hardware or software)
CPU	Central processing unit
CS	Computer Software
CSCI	Computer Software Configuration Item
CSCs	Computer Software Component
CSMS	Communications and Systems Management Segment (ECS)
CUT	Code and Unit Test
DAA	Data Availability Acknowledgment
DAAC	Distributed Active Achieve Center
DADs	Data Archive and Distribution System
DAN	Data Availability Notice
DAS	Data Availability Schedule
DCE	Distributed computing environment (OSF)
DCN	Document Change Notice
DD	Detailed Design

DDA	Data Delivery Acknowledgments
DDIST	Data Distribution Service CSCI
DDTs	Distributed Defect Tracking System
DMO	Data Management Organization
DPR	December Process Review
Early AM-1	EOS Morning Crossing (Descending) Mission
ECS	EOSDIS Core System
EDF	ECS Development Facility
EDOS	EOS Data and Operations System
EOC	Earth Observation Center (Japan);
EOS	Earth Observing System
EOSDIS	Earth Observing System Data Information System
EP6	Evaluation Package 6
ESN	EOSDIS Science Network (ECS)
ETR	Element Test Review
F&PRS	Functional and Performance Requirements Specification
FDF	Flight dynamics facility
FOS	Flight Operations Segment (ECS)
GCMD	Global Change Master Directory
GDAO	Goddard Space Flight Center Data Assimilation Office
GSFC	Goddard Space Flight Center
GUI	Graphical User Interface
HDF	Hierarchical Data Format
HMI	Human Machine Interface
HTSC	Distributed computing environment (OSF)
HW	Hardware
HWCI	Hardware Configuration Item
HWCIs	Hardware Configuration Items
I&T	Integration and Test
IATO	Independent Acceptance Test Organization
IDL	Interactive data language

IDRs	Incremental Design Review
IERS	International Earth Rotation Service
IR-1	Interim release-1
IV&V	Independent Verification and Validation
L0	Level 0
LaRC	Langley Research Center (DAAC)
LIM	Local Information Manager
LIS	Lightning Imaging Sensor
M&O	Maintenance and operations
MSFC	Marshall Space Flight Center
MSS	Mass Storage Space
NA	Non Availability
NESDIS	National Environmental Satellite Data and Information Service
NMC	Network management center
NOAA	National Oceanic and Atmospheric Administration
NRCA	Nonconformance reporting and corrective action
OTS	Off-the-Shelf
PDR	Preliminary Design Review
PGE	Product generation executable
PMS	Performance Measurement System
PR	Precipitation Radar (TRMM)
PR	Precipitation Radar (TRMM)
QA	Quality Assurance
QAM	Quality Assurance Monitor
RTM	Requirements and traceability management
SCF	Science Computing Facility
SDP	Science Data Processing
SDPF	Sensor Data Processing Facility (GSFC)
SDPS	Science Data Processing Segment (ECS)
SMC	System Management Center (ECS)
TBD	To Be Determined

TMI	TRMM Microwave Image
TOMS	Total Ozone Mapping Spectrometer
TRMM	Tropical Rainfall Measuring Mission (joint US-Japan)
TRR	Test Readiness Review
TSDIS	TRMM Science Data and Information System
USNO	US Naval Observatory
V0 ODL	Version 0 Object Description Language
VIRS	Visible Infrared Scanner (TRMM)